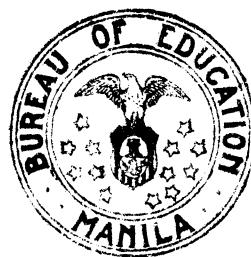


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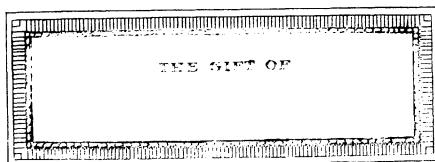
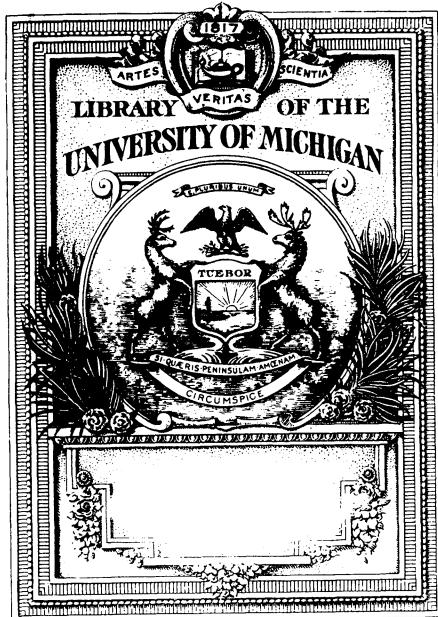
# PHILIPPINE HATS

BY

HUGO H. MILLER  
PHILIPPINE SCHOOL of COMMERCE



MANILA  
BUREAU OF PRINTING  
1910



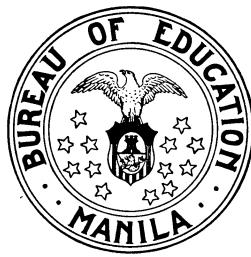
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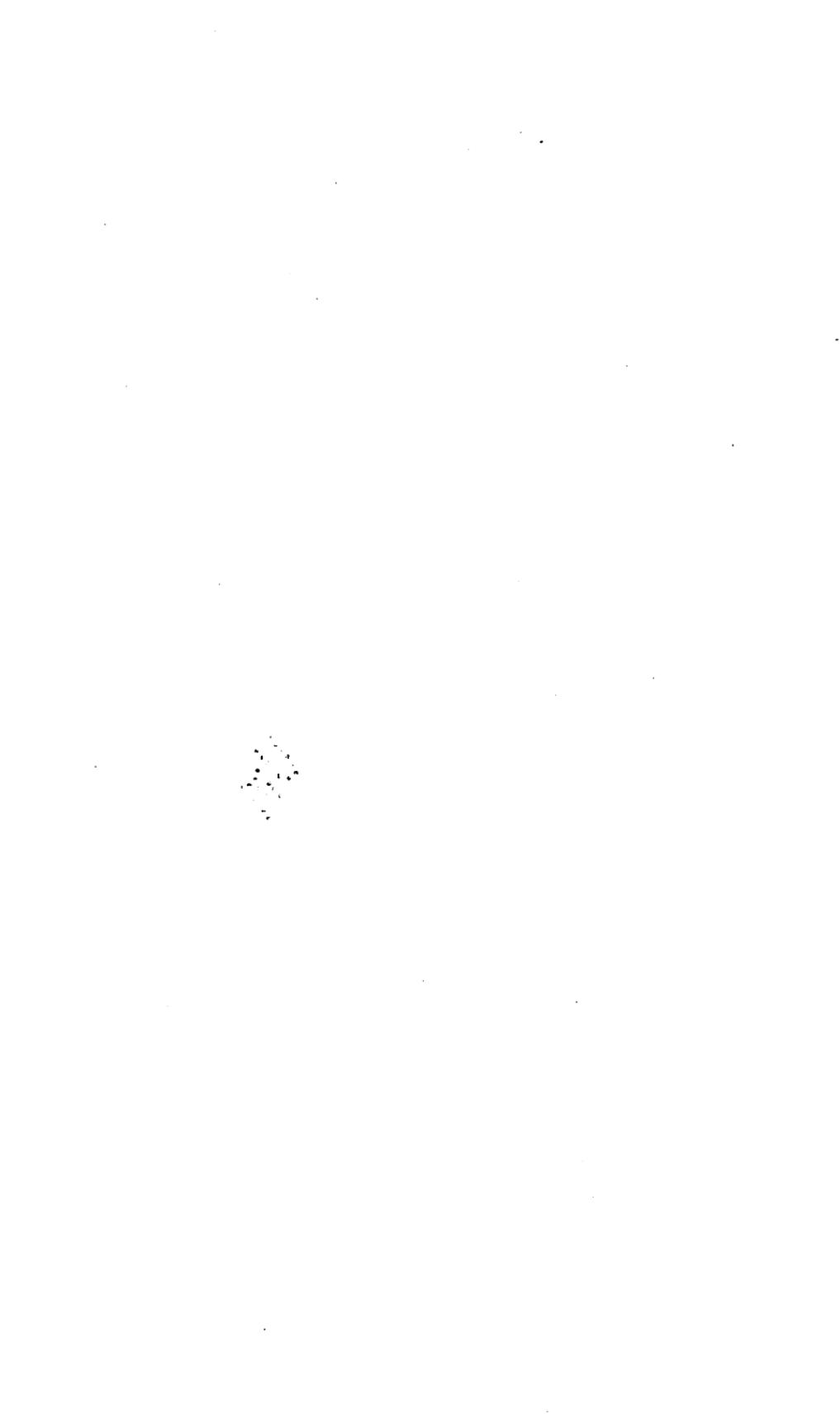
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## INTRODUCTION.

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The Bureau of Education has introduced hat weaving as a prescribed exercise in the primary schools. This is a household industry capable of great development in the Philippines through the agency of the schools. Many raw materials admirably adapted for use in the weaving of hats are widely distributed over the Islands, and others now narrowly localized can be given general distribution. A growing market exists in the United States and Europe, which will accept all the product the Philippines can possibly supply. The local market is demanding constantly a larger output and a higher-grade article. The Bureau of Education considers it one of its legitimate functions to give such training in the making of good hats as will afford a large number of children a permanent means of earning a livelihood.

As indicative of the development which is possible for this industry in the Philippines, it may be noted that in the fiscal year 1910 621,375 hats were exported from the Islands, and 189,190 of these went to the United States. These figures represent a very small fraction of the proportions which the hat industry may assume when the Islands are ready to supply the growing demands which are being made for Philippine hats in the world markets.

This report covers a new field. Hat making, like most other minor industries in the Philippines, has never before been the subject of any serious investigation. Mr. Hugo H. Miller, of the Philippine School of Commerce, has here compiled an extensive and reliable body of information. This material has taken four years in its preparation, and has been gathered from students, weavers, hat brokers,

exporters, and supervising and industrial teachers throughout the Islands by correspondence and conversation, and by personal investigation in hat-producing towns. Upon many technical details Mr. Miller has had the assistance of Mr. U. S. Andes, principal of the industrial department of the Philippine Normal School.

FRANK R. WHITE,  
*Director of Education.*

MANILA, P. I., *November 15, 1910.*

## PHILIPPINE HATS.

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### PRESENT STATE OF PHILIPPINE HOUSEHOLD INDUSTRIES.

A considerable source of revenue to provincial households is found in the domestic industries carried on for the most part by the women assisted by the men and children, sometimes in their spare moments, more often as regular employment. The system as carried on to-day in the Philippines bears very close resemblance to that followed in England and on the Continent in the eighteenth century before the industrial revolution, the introduction of machinery and the application of steam and other power to it, and the factory system. The comparison between these systems of household manufacture—the one long since passed away, the other of growing importance—is an interesting subject, but since this report is intended to explain and classify the various products rather than to enter the historical economic interest of the system, such a discussion can not be gone into here; nor will space permit comparison with present systems of domestic industry found in oriental countries, such as Japan, China, and India, and in certain parts of Europe.

Two general ideas, however, should be emphasized: First, that the production of various hats, mats, textiles, embroideries, and other articles constitutes important industries occupying the time of thousands of persons, bringing into the households thousands of pesos and becoming more and more recognized trades; secondly, that the manufacture of each particular article is limited to particular towns. This concentration is often accounted for by the proximity of the raw material to the town wherein the article is manufactured, as the making of cloth from abaka in Albay, Batangas, and Iloilo; of bamboo hats in Baliwag,

and of sabutan hats in Laguna. But the growth of raw material will hardly account for the fact that the making of hats from the midrib of the unopened buri-palm leaf, carried on in the town of Kalasiao, in Pangasinan, and Pototan and neighboring towns in Iloilo, and the weaving of buntal hats in Lukban and adjacent towns of Tayabas and Laguna from fiber obtained from the leaf stem of the buri palm, is practically limited to those towns only, although the buri palm occurs in as great and even greater numbers in other localities throughout the Archipelago. Nor will it account for Albay being almost alone in the manufacture of pinolpog from beaten abaka, Iloilo in that of flowered sinamay, and Batangas and Rizal in that of certain kinds of jusi. This concentration can, perhaps, be best seen in the town of Kalasiao, where the raw hat materials come from other towns some distance away and where, although the buri palm grows in abundance throughout Pangasinan, the industry has spread but little to any of the surrounding towns, not even to Dagupan, of which Kalasiao is geographically almost a part. This concentration of industry can only be accounted for by a certain immobility and a certain indifference to the introduction of anything new or unfamiliar, and is perhaps one of the greatest difficulties which must be met in spreading the household industries over the Philippines and in improving the methods in vogue.

The fact, however, that certain industries have lately of themselves spread more or less from town to town and have been carried successfully into new localities, and that certain innovations as to the method of manufacture have been well received, would indicate that a new interest is being felt and that the wider distribution and improvement of the household industries in the Philippines is by no means an impossible task. As to the advisability of doing so from a commercial standpoint, it may be stated that, both in foreign and domestic commerce, the demand both present and potential for the products of Philippine households is far greater than the supply.

An excellent example of a town into which new industries have been introduced by the schools is Mahayhay, Laguna.

Pandan mats have long been woven there. In 1904 a woman was brought from Lukban to teach the weaving of buntal hats. Advance was slow at first, but finally a class of twelve girls was formed. The teacher was eventually sent back to Lukban and one of the girls took her place. Soon the women of the town became interested in the weaving and were taught by the schoolgirls, so that to-day Mahayhay has quite an export of buntal hats. The buri-hat industry was introduced in the same way and with equal success.

While many workers make loom weaving, hand weaving, or embroidering their vocation, the natural time of household industries is in spare hours, as between harvests and during idle moments between duties of the household, just as in Europe the long winters and spare hours are turned into funds by making toys, embroidery, hat braids, and other articles.

#### THE SALAKOTS.

In general, outside of certain unique hats, such as those of the Igorots, the sun hats of the Batan Islanders, and the hats of certain wild tribes, there are in the Philippines two classes of commercial hats—salakots,<sup>1</sup> or stiff hats, worn by agriculturists and other laborers as a protection from the rain and sun; and blocked hats, which are being used in increasing numbers in the Philippines and which are being exported in growing quantities.

The making of salakots is carried on in nearly every town in the Islands, although some localities, such as the Ilokos Provinces, are noted for their manufacture more than others, and consequently as an article of domestic commerce they are almost entirely limited to town trade, being made by certain inhabitants of the town and disposed of within its borders. Bohol hats are exported from that island in considerable quantities and find a ready sale throughout the Bisayas and in northern Mindanao. The mountain

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<sup>1</sup> "Salakot" is the name applied in most provinces, although the hats are known as "kat-tokong" in the Ilokos and Kagayan Provinces, "turung" in Pampanga, and "sarok" in certain parts of the Bisayas. Various names are applied to particular salakots.

towns of Cavite Province make salakots selling for from ₱2.50<sup>1</sup> to ₱10. The wearing of these hats generally by men and women and even by school children make these towns unique as regards headgear. The materials used vary considerably. The cheapest varieties are made from leaves of anáhao<sup>2</sup> and nipa and the sheaths found over the nodes of certain bamboos, either used alone or held between net-like weaves of bamboo or nito straw. Paper and leaves or paper and cloth are also used in the same way. Among the Ilokanos, anáhao leaves are a very popular material, and among them also the half of the large "white squash" is employed. Occasionally large coconut shells are used in the same way in coconut districts, and in many provinces salakots are made of wood, light in weight. In Tayabas and Laguna Provinces salakots are made by fastening together several pieces of wide bamboo layers. The more expensive salakots are closely woven of nito (long brown or black fern stems) and a few are made of thin strips of carabao horn and of turtle or tortoise shell. The materials used are bound together either with rattan or bamboo, and the arrangement to fit the hat upon the head is also woven from the same materials, bamboo in each case being used for the cheaper grades. The shapes of salakots vary. Most of them are round like a mushroom, some are formed like sun helmets, and others are often of fantastic design. In price salakots vary from 20 centavos to ₱5 and over for the plain varieties, and above that amount when they are covered with silver ornaments, which are usually made from silver pesos. Salakots were formerly much more used than at the present time, the well-to-do and the official classes wearing them under certain circumstances. Their use is growing steadily less, their place being taken by the blocked hats such as the buri and pandan and by straw hats manufactured from straw plaits. The better-made salakots, particularly those

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<sup>1</sup> ₱1 Philippine currency equals 50 cents United States currency.

<sup>2</sup> Botanical names have been avoided, since they would identify plants for few of the readers whom this report is intended to reach. Where a name is not generally used, an attempt has been made to obtain equivalents in the dialects and to describe the plant.

made of nito trimmed with silver, are, however, of considerable value in the curio trade, though their making is not at present carried on.

#### BLOCKED HATS.

#### MATERIALS.

Under this heading is included those hats woven upon a wooden block and capable of being blocked into any particular shape and to fit the head. There are several different kinds made in the Philippines, each of which is here taken up separately. A great deal of confusion exists concerning the sources of the different straws and their relative durability. The qualities of these hats depend chiefly upon the kind of straw used. The word "straw" must not be taken to mean the stalks of cereals, such as rice or wheat. It is here intended to mean the prepared strips of grass, midrib, or leaf used to weave into hats. The process of obtaining such straw usually consists in reducing the raw material into strips, and in turn reducing the strips to uniform width and thickness. Materials vary in the ease with which the straw is obtained, being most simple for buntal, which is pulled out of the buri stems (petioles) and then sorted into uniform sizes. The most complex, although not the most difficult, is bamboo straw, in the preparation of which the raw material goes through many steps before straw of uniform size is obtained. The cheapness of the material does not depend, however, upon the complexity of the process, for bamboo is fairly easily obtained, while the production of buntal, Kalasiao, and rattan straws though not so complex is nevertheless more difficult and consequently more expensive because of the large amount of labor involved.

Hat straws differ from each other in strength, but while their tensile strength, which is of such importance in ropes, is a factor, their toughness is of even more importance, for many straws which will break easily when pulled make excellent hat material, since they will not crack upon being bent and have the quality of not wearing away easily. A quality of softness might here be included, since the harsh

straws, like bamboo, are usually easily cracked, while the soft straws, such as Kalasiao and sabutan, are usually tougher. The tensile strength of hat straw is of chief importance in regard to the weaving, for the material must then have sufficient strength not to break.

Flexibility is another importance consideration with regard to weaving, for the less easily bent the material the harder it is to weave and the more costly is the hat. Buntal may be considered a rather stiff straw, while buri and sabutan are flexible. The flexibility of the straw will also affect the stiffness of the hat, for a flexible straw like bamboo will produce a hat which must be sized in order to have it keep its shape, while a stiff straw like buntal produces a hat requiring no size, even though it be not woven as closely as the more flexible material. This lack of body and stiffness in certain hats may be overcome by weaving two straws together in a very close weave, as will later be explained, or may be partially overcome by joining two hats together, one inside the other.

The difference in color of the straws is also very important. Philippine hat straws vary in color from black and brown, as nito, through greenish, as pandan, gray, as sabutan, to straw color of different shades running almost to white, as in the case of certain bamboo layers. Each straw itself varies in shade according to the part of the material from which it has been obtained, as in the case of bamboo and Kalasiao, where the shade varies with the distance from the outer skin. Or it may vary in color according to the process of curing the straw, as in the case of buri straw, which is greenish when merely dried and almost white when boiled and dried.

All yellowish straws brown under the combined action of sun and moisture. Cleaning and bleaching reduce them to about their original color.

The boiling process is after all merely a form of bleaching, and Philippine straws also differ greatly from each other as to the ease with which they are bleached and as to the length of time such bleaching will hold. Buri, for example, is easily bleached in its preparation by the simple method of boiling in water to which the juice of sour fruits, or

such fruits themselves, or vinegar, has been added. Cured buntal straw is easily bleached, while sabutan becomes white only after several immersions in the strongest bleaching agents, causing a considerable loss in the body and strength of the straw.

The question immediately arises whether it is better to bleach the straw or the hat. Where the straw bleaches easily or without loss of body, as bamboo and Kalasiao, it is better to bleach the hat, since bleached straw is usually less flexible, less strong, and harder to keep clean while weaving, while if the straw in its natural color is woven, soot and stains can usually be removed by bleaching. But where the straw bleaches with difficulty and with much loss of body, which shows itself in shrinkage, as does sabutan, it is best to treat the straw first, for, although soot and other stains can not be gotten rid of, the ordinary dirt and the discoloration from perspiration can easily be removed by washing. If the hat itself be bleached, the bleaching agent has difficulty in penetrating between the straws, so that, on account of loss of body in shrinkage of the straw, the hat may be changed from a closely woven one to one of very loose texture.

Bleaching agents used in the Philippines vary. As explained, producers of straw use the simple solution of acetic acid obtained by mixing vinegar or sour fruits with water, in which they boil or steep the material. The hat-ters use bleaching powder as obtained from the druggist, the peroxides, and the strong acids, such as oxalic, phosphoric, and sulphuric, either alone or mixed together. Often bleaching mixtures consist of several strong acids mixed together in which the hat has several baths. It is not the bleaching agents concerning which bleachers are so secretive, but rather the fine points in the process of bleaching which they refuse to divulge, such as the number of baths given, the length of time the hat remains in the bath, and treatment after it has been subjected to the bleaching agent. They also powder or smear the hats with sulphur or subject them to its fumes, neither of which processes, though harmless, gives satisfactory or lasting results. The whole field of bleaching various Philippine hat straws is an important

one, and one upon which considerable time in research could profitably be expended on account of the large domestic demand for white hats. Some interested persons believe that the bleaching of the straw before it is dry would be easier than bleaching the prepared material and would result in stronger straw.

#### STYLES AND WEAVING.

Hats are usually woven in the morning, in the evening, and at night, because most straws are more pliable at those times. During the heat of the day the moisture is more or less dried out of the straw, and hence the material does not work so well. Some straws fray at the edge in weaving if woven in the middle of the day. In Baliwag weaving is sometimes done in a damp place, as in a shallow well, in which the weaver sits on a platform just over the water. Sometimes the straw is kept moistened, but, though popular fancy has it to the contrary, no hats are woven under water. The hats are commenced at the top of the crown with straws long enough to reach the brim except in the case of bamboo. As the hat progresses, new and shorter straws are woven in by overlapping. When the top of the crown is finished, it is usually placed upon a block of wood which has the shape of the crown desired in the hat. The weaver places this block on her lap with the top down and weaves the side up until the brim is reached, after which the block is removed and the brim woven.

Sometimes the block is placed upon a table or bench and rested upon a soft ring of cloth. Inexperienced weavers obtain better results by leaving the hat on the block until the brim is finished. This is the regular method followed for buntal hats. The crown of the sabutan hat is sometimes woven before it is put upon a block. Hats are finished by turning back the straw ends and weaving them into the hat along the edge. The brim edge is made to curve by firmly pulling the straw ends woven back, and protruding straws are then trimmed off. In the case of such hats as bamboo and Kalasiao, two hat pieces are joined together at the brim by the process which will be described for bamboo hats. The last step in the finishing of a hat is usually one

peculiar to it, as, for instance, polishing with a piece of glass in the case of bamboo, dusting with sulphur in the case of Kalasiao, and ironing as is done with buntal. The finishing process is usually done while the hat is on the block, its purpose being to increase salable appearance. The process of weaving is too technical to be here described. Besides the block, the tools used are a strip of rattan, or straw, which is drawn around the hat to hold the sides closely against the block so as to make the proper shape, and sometimes a fitting tool, which consists of a small piece of bamboo and is used to press the straws closely together. The finger nails usually do this fitting.

The wooden blocks which determine the crown vary in size and height, according as to whether the sides are tapering or straight and whether the top is flat or rounded. The shape of the block from which the hat is woven will be the shape of the hat crown, and its proportions, together with the size of the brim in relation to them, determine the style of the hat. Weavers and brokers often measure these proportions by fingers, saying, for instance, that a hat crown is four fingers high and the brim six fingers wide. In general there are two shapes, as illustrated in hats for women and hats for men, but there are many styles within them. There are also in the different hat-producing towns certain standard shapes which the weavers prefer to make. The brokers, in order to supply the demand for changing styles in the United States and Europe, are in the habit of furnishing blocks and giving directions as to the size of brim. Hats so produced, however, are usually more expensive, since they cause extra trouble to the weavers, who usually know that the broker has orders which he is compelled to fill and consequently can be made to pay a higher price for the hats. In general it may also be stated that the weavers are put to more trouble in weaving the crown than the brim, and consequently the larger the crown is in proportion to the rest of the hat, the higher the price. Within certain limits the size and shape of the crown and the proportion of the crown to the brim may be changed in the blocking process, which consists roughly of forcing the hat over a wooden block of the

desired shape, changing the style of the crown with the aid of steam, a hot iron, and a sizing of prepared gelatin, and adding part of the brim to the crown, or vice versa. The wooden blocks upon which hats are made are produced to a certain extent in Manila by men who make it their business. Such blocks vary in price from 50 centavos to ₱1.50. Often exporters and brokers receive blocks from Europe and the United States with orders for certain styles of hats.

In general there are two weaves of Philippine hats. The "close" or "sawali" weave is particularly adapted to straws which are not very tough and are liable to crack when bending or to straws which do not produce a hat with enough stiffness and body in the other weave. Bamboo, sabutan, and Kalasiao hats are woven in this style, which might be called the Panama weave. The "mat," "open," or "over-and-under" weave is much more simple and can be used where the straw has considerable stiffness and will not crack easily in the process of weaving. This weave is used particularly in the case of buntal and buri, and gives a very light hat both to the eye and in weight. Such weaving, however, does not tend to let the straws support each other and is not as strong as the "sawali" weave. Hats also differ as to whether they are woven of one straw or of double straws. Sabutan hats, for instance, are woven of double straws. Some buri hats are also woven of double straws, the upper one often being narrower than the lower and giving a fancy-braid effect to the hat. Hats woven of double straws possess greater body and stiffness than those of single straws of the same material. As already explained, in order to give greater body to the hat, two or even three single hats may be joined together so that in some cases, such as with bamboo and Kalasiao products, we may have single, double, or even triple hats.

To judge the kind and style of hat which is required in the foreign market is the most difficult part of the exporter's work, and the novice in such a business is liable to make many mistakes before understanding the requirements of different European and American markets.

## THE BAMBOO OR BALIWAG HAT.

The bamboo or Baliwag hat is the best-known product of Philippine households interested in hat weaving. As the name indicates, bamboo hats are principally made in the town of Baliwag, Bulakan, but in the export trade Pulilan hats are as important. The industry originated in Baliwag, and it is there that most of the better grades of bamboo hats are made, but in Pulilan there is a great production of the coarser grades, which are exported in very large lots, so that "Pulilan" has come to mean a coarse bamboo hat to wholesalers. While these two towns are the chief producers, the industry has also been introduced into other towns of the province, such as Kingwa and Malolos, though such places are apt to turn out the coarser varieties, since the weavers are not as expert. In one town in the Province of Bulakan a society of women has been formed for the purpose of learning the industry. In other districts of the Pampanga valley, bamboo-hat weaving is being taken up, as, for example, in Apalit, Pampanga, from which there is a small export of coarser bamboo hats, and in San Luis, Pampanga, and San Isidro, Nueva Ecija, where they are produced for local use only. In many cases the origin of production can be traced to the public schools.<sup>1</sup>

There are many species and varieties of bamboo in the Philippines, some being of greater use than others. The straw for bamboo hats is obtained, for the most part, from kawayan, which is the common bamboo of the Philippines, though it may also be obtained from bukawe, which is not so much used since it is smaller in diameter.<sup>2</sup> The bamboo

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<sup>1</sup> It would be impossible to include in this report the names of all towns producing the different blocked hats in minor quantities. Such a list is now being verified by the Bureau of Education and may be had upon application.

<sup>2</sup> The names are used in Bulakan, where the word kawayan refers in a general way to all bamboos, but specifically to the common bamboo, which has many uses, as in making baskets, rope, fine sawali and furniture, and in house building and the like. The name is used in many other localities also, but is not understood in the Philippines generally. Perhaps "long-jointed, thick caña espinas, or spiny bamboo," is the best description of it.

commences to sprout in May and is old enough to cut for use during the months of August, September, and October, before the branches begin to grow and when the fiber is at its best. A straggling production runs over into other months. Either one-third of the young shoots are cut each year or all are cut every two or three years, as complete harvesting of young shoots in successive years kills the clump.

The preliminary work in the manufacture of bamboo straw is done by the men. The bamboo after being felled is allowed to wither in the shade for from three to five days, and is cut up into sections at the node with a bolo. The nodes are trimmed off. Since the sections toward the bottom would produce too short material and those at the top too weak straw, the middle sections only (from ten to twenty in number) can be used for the purpose. Each section is split into three or more pieces lengthwise and the inner part is split away with a short, sharp, stubby knife until there remains but about one-eighth of the original thickness, including the green outer skin. The material split away can not be used, since the straw obtained from it would be too coarse and weak. The stripper must be expert enough to know when he has obtained the proper thickness. The remaining strip of bamboo is flattened by placing one end on a bench and forcing the rest down flat so as to remove the curve. The stripper then cuts two lines across near the top, one deeper than the other, but not through the material, and pries and pulls the bamboo into three layers (lapat), each of which can be again reduced to thinner layers in the same manner, so that from four to ten layers, besides the green outer skin (balat), can be obtained, though the usual number is five or six, and it is very seldom that more than eight are produced. The layers are then boiled in water for about half an hour and bleached in the sun—a strengthening and whitening process. Bamboo layers in small bundles are sometimes an article of commerce and can be bought in the market, on the streets, and in the houses of the makers. The large hat brokers have layers made up for the use of their weavers.

The bamboo layers are divided into grades according to their distance from the green outer skin. While the green skin itself is useless and is thrown away, the layers next to it produce the best material, it being of a dark straw color and of the strongest and finest texture. As the layers occur farther away from the skin they become lighter in color, of less strength, and coarser in texture. The finer hats are therefore produced from the first few layers, those from No. 5 on being used for coarser hats only. The very finest hats are usually produced from layers Nos. 1 and 2.

The work of preparing the bamboo straw and weaving the hats is mostly in the hands of women. When a hat is to be made, layers of the same quality are selected from the stock on hand. To a layman, while the difference between No. 1 and No. 5 layers is very noticeable, the difference between consecutive layers is not discernible, but the women become so expert that the selection of layers of the same class from the bundle is easily done, the criteria being, as stated, the color and texture. Layers as bought in the market in small bundles are often already sorted. Such bundles vary in price according to the texture and length of the layers. In preparing the straw the layer is split, one-third down at one end, with an awl into strips of about equal width, the width depending on the fineness of the hat to be woven. The fringe thus formed is then grasped in the left hand, and the awl, held in the right hand, is run under and over the stripes, so that the layer upon being pulled is reduced to straws. Sometimes the straws are, however, produced one at a time. To reduce the straws to uniform width and thickness they are run under a bolo into which nicks have been made. The bolo is fastened with nails to a block of wood and under the nick which is to be used (for there are nicks of numerous sizes in the bolo) there is placed a piece of smooth pottery over a padding of cloth. The straws, being drawn underneath the bolo, are, by one operation, shaved off to the required thickness and at the same time reduced by the nick to uniform width.

Bamboo straw is comparatively flexible and easy to weave. The straw is frequently dampened to make it more workable, for though such a process results in a yellowish hat, a much finer and smoother weave can be made. The top of the crown is first woven and, when completed, is placed over the block so that the side can be done. The beginning must usually be done with moistened straw. The crown is then removed from the block and the brim woven. Bamboo hats are produced only in the "close" or "sawali" weave, since, not being tough, the straw would crack in the process of the "over-and-under" weave. So expert do the women become that they can sit for hours at a time half dozing, yet rapidly moving the straws into place almost automatically with their fingers. The most delicate and finest hats require many months to complete, but few of them are made. The coarsest grades require but a few hours to complete. Baliwag hats are double—that is, two separate hats are joined around the brim. The finishing of the hat is a separate operation and is carried on by certain women who are expert in it. It is therefore usual for the maker or the buyer to pay another woman to weave the two pieces together. This may cost from a few centavos to several pesos, depending upon the fineness of the hat. It is on account of this slight division of labor in the making of Baliwag hats that single hats are left in an unfinished condition, long, loose straw ends stricking out in every direction. This allows the hat brim to be made as wide as desired and two hats of different grades to be woven together. The inner hat is always of a coarser grade than the outer one and in joining and finishing is turned inside out so as to present the outer surface within the crown. Both hats are placed on the block, the inner hat is cut smooth around the edge with a pair of scissors, and the projecting straws of the outer hat are woven into it with the aid of an awl, thus binding the two parts together and finishing the completed hat at the same time. The last steps in the manufacture of a bamboo hat are to trim off the projecting straws and polish it with some hard, smooth

surface, such as that of a bottle, giving to the hat a luster which is characteristic.

Commercial bamboo hats range in weavers' prices from 30 centavos to ₱25, although cases are reported of hats selling for ₱300. In the Manila market generally, very few of the finest commercial hats are found because so few are made, and few of the coarsest hats because they are produced for export. The export grades may be said to be the coarsest and medium grades. Those used in the Philippine domestic market are the medium and finer grades. The hat most largely exported is perhaps the coarse Pulilan hat, which, though double, is often simply turned at the edge and basted down. This allows the outer hat to be either bleached or dyed before being permanently joined to the inner one. One often sees bamboo hats in the United States with the outer part black and the under natural straw color.

There is a considerable number of people engaged in the hat-buying business, nearly all of them residents of Baliwag. In that town there are four or five very large buyers having a great number of weavers making hats for them and a large number of relatives selling the hats. Besides, there are also a number of smaller "independent" brokers, who usually work by themselves and who have a greater or smaller clientele of weavers producing hats for them. It is usually the custom of the brokers to advance money, rice, and other commodities to weavers who sell them the product of their labor. There is, of course, some changing of workers from one broker to another as one may express willingness to advance money or commodities on better terms. There are also a few families of weavers who are independent, and bring their hats to Manila themselves. The brokers are in the habit of placing their initials inside the hats which pass through their hands. They dispose of their wares to the larger exporters in Manila in thousand lots and to the smaller dealers in lots as low as a dozen. Standard shapes are taken as completed, but the broker is also able to give to

the weavers under his control blocks and directions as to the size and shape of hats required in order to fill any particular orders of the Manila exporters. In this way shapes and sizes are suited to the demands of fashion in Europe and the United States, though, as already stated, it is somewhat difficult to have the weavers change from their standard shapes, and hats made to order are usually more expensive than those produced on the common blocks. On very coarse hats the brokers are content with a profit of a few centavos, but on the more expensive and finer hats they make more than proportionally larger profit. They also carry their hats to dealers both in Manila and in different parts of the provinces and peddle them to foreign residents and strangers on the streets of Manila at prices varying according to the knowledge the buyer may have of hats and of the country. On Wednesdays and Saturdays in Baliwag and on Fridays in Pulilan, markets are held where the brokers and independent weavers sell their hats (usually not completed). The brokers may be either men or women—in fact, some of the largest brokers are women. The exporters in Manila often have their own representatives (usually foreigners), who travel into the hat-producing region, looking over the local hat market and buying of dealers who may have accumulated a supply.

Bamboo hats are not as long-lived as most Philippine export hats, but they must be considered a strong hat nevertheless. As already stated, they are the chief export hat of the Philippines, being sent in increasing numbers annually to Europe and to the United States, where they are known under the name of Java<sup>1</sup> or Manila hats. One sees a great many bamboo hats in the United States worn by both men and women. Hat pins are liable to damage bamboo materially, punching it full of holes. This is sometimes obviated by using patent fasteners, which fasten the hat underneath the crown. The hats do not keep their shape well without size, although it should be noted that weavers are now beginning to put a stiffening of sinamay between the two pieces of the double hat. Bamboo bleaches

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<sup>1</sup> In 1907 Java exported bamboo hats to the value of \$211,000 United States currency to the United States alone.

very well and easily, though it does not hold the bleach as well as Kalasiao straw.<sup>1</sup>

The chief hat qualities of bamboo are therefore the ease with which the straw can be prepared, the large quantity of raw material at hand, the varying fineness of straw which can be so easily made, the flexibility of the straw facilitating weaving, and the ease with which it is bleached and dyed. These are the causes, undoubtedly, which have led the bamboo hat to be the chief export hat of the Philippines and the one which can now be obtained in largest quantities. But the advisability of encouraging its production in the schools is doubtful. Although the bamboo hat has an established market, there are other materials which, though not equaling it in many of the above qualities, yet surpass it in other ways and produce hats which are stronger, not as easily damaged by hat pins, require less or no size in blocking, and give the weavers higher wages on account of the demand for hats made from them.

#### BURI-PALM STRAWS.

##### USES OF THE BURI PALM.

The buri palm<sup>2</sup> is one of the most valuable palms grown in the Philippines. In the variety of its useful products, it exceeds either the coconut palm or the nipa palm in local importance, though the value of the products of the coconut

<sup>1</sup> The dyeing qualities of the lower grades are excellent, and consequently many fancy articles, such as baskets and the like, are made from colored bamboo—in Baliwag, particularly for the Christmas trade—and are used as containers for candy, fruit, and the like. Small mats, usually intended for table use, are also made of bamboo, often colored, an industry, introduced through the schools, of which the larger part is carried on in Pulilan. Of late there has grown up a large trade in plain bamboo mats, which are exported to be blocked and trimmed into bonnets for women and children. Cigarette cases, both colored and plain, are also made in Baliwag, but are not as popular as those of Kalasiao. In Baliwag, round cap crowns without top and brim are woven. They are used in making military caps. Bamboo hats are often converted into sun helmets by blocking and covering them with cloth.

<sup>2</sup> Buri (in most localities); Buli or búle (Tag. and Bis.); Silag (Il.); Silág (Pang.); Ebus (Pamp.).

palm far exceeds the value of its products in pesos and centavos, and, when we consider the large amount of alcohol obtained from the nipa palm, the products of buri may also be of less monetary importance than those of the nipa. From the buri a juice is obtained which can be fermented into a wine, boiled down to sirup, or further boiled and crystallized into a palm sugar. The young fruit kernel is edible, being usually cooked in sugar, and the kernel of the matured fruit is so hard that it is used in the Philippines to form into rosary beads, and in Europe, whence it is exported from India, to make into buttons and like articles. The palm drops its leaves and produces a large bunch of fruit after reaching a very old age, variously estimated at between 25 and 40 years. It then dies. The trunk contains a large quantity of starch, often extracted and eaten. In fact, this starch is, with venison, the staple article of diet in the southern Tayabas peninsula outside of the towns of Katanawan and Mulanay. Buri sugar is almost exclusively eaten there, and what little money the people receive is earned by selling bundles of the dried unopened leaves and making mats, which are used in Manila to cover hemp bales, and bayones, which are shipped out for use as sugar containers.<sup>1</sup>

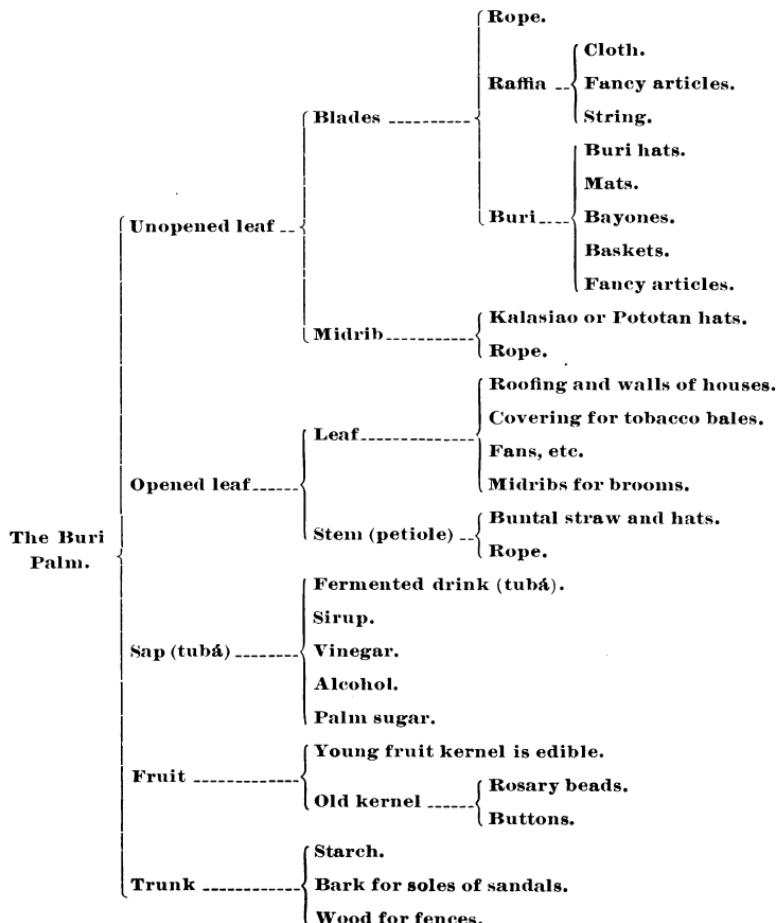
Four valuable straws are produced from different parts of the palm. Raffia is the outside skin of the unopened leaf. It is dark yellow in color and is serviceable in making many pretty articles in the lower grades of schools. Raffia is also produced from the skins of several other plants as the common banana and abaka. Buri raffia seems to be the most satisfactory of those produced in the Philippines. The true raffia of commerce comes from Africa and Madagascar, and is used by nurserymen in tying up plants. It can also be used for weaving into a peculiar and rather pretty cloth. In Bohol buri raffia (saguran) is woven into colored floor mats, blankets, curtains, and cloth used to wrap tobacco. Such a cloth is said to be produced in Marin-

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<sup>1</sup> Buri starch should not be confused with the starch (yuro) of the sugar palm (kaong; hibiok; irok; cabonegro palm), which is eaten among the Mangyans of Mindoro, and is also now being used by the Christian Filipinos of that island.

duque from buri raffia and is used for petates, sails, and even the clothes of the poor. The other three straws from the buri palm—namely, buri straw, Kalasiao straw, and buntal straw—are very important in hat making in the Philippines. They are taken up separately below.

It is a peculiar fact that only one of the straws is usually produced in a given place, and the other parts are allowed to go to waste. In fact although the production of buri straw is widespread, buntal and Kalasiao straws are each commercially produced only in two districts. There are many large growths of buri palms which are now being used for no fiber production.



## THE BURI HAT.

Buri straw is made from the unopened buri leaf. When cut, the long leaf buds which are just about to open are spread out in the sun, the leaflets being separated from each other. When dry, the leaflets are cut from the midrib with a sharp knife, smoothed by pounding them with a wooden maul, or by running them between the finger and a piece of bamboo, or between two smooth boards, and are rolled up tightly and kept until required for use. This kind of straw is seldom used, however, except for baskets, petates, and bayones, since it has a bad green tinge and is thick.

Buri is whitened by separating the leaflets of the newly cut, unopened leaf from the midrib, rolling them up, and boiling them in water to which an equal part of vinegar, or sour fruits and leaves or alum, has been added. Sometimes sulphur is also added. Or they may be loosely put into the water and weighted with a stone. When they have boiled half an hour they are spread in the sun until dry. The leaves are afterwards placed in water drained from rice (though this process may be omitted), washed in clean water, and dried in the sun. The last operation, including the rice-water bath, is repeated several times, and the leaves are sometimes left out during a few hours for a couple of nights. They are then smoothed and made into rolls or bales (ikid; inikid), which are an article of commerce in many sections of the Philippines. Buri is easily dyed. Aniline dyes have almost completely taken the place of the native vegetable dyes for this purpose, but are not entirely satisfactory, since they fade very badly.

Buri straw is produced from the boiled leaflets by the use of a bent bamboo, buri, or leather guide, which is held in one hand, the thumb pressing a small sharp knife into a nick in it. The leaflet, pressed against the inner crease of the guide, is pulled up by the other hand, and a straw of uniform width is thus cut off. Straw may also be produced by drawing the leaflets between knife edges set in wood.

The straw can be made fairly fine, although the hats usually met with are made of straw a centimeter or more

in width. Buri hats are woven in the "open" or "over-and-under" weave, of either single or double straws. Often the upper straw is wider than the under one, especially in women's hats. Edging and trimming are often done by children and inexperienced weavers. Buri straw is also plaited into braids, which are sewn together in imitation of straw hats in sailor shape. Very pretty hats for children's wear are made by weaving in a few colored straws. In Lukban a very few hats are made in the "sawali" weave from fine buri. The hats are an experiment, and on account of the stronger weave and good white color may prove to be popular.

Buri hats vary in price from a few centavos for small children's hats to ₱2 or ₱3 for the finer kinds. The usual variety is retailed at about 40 centavos. It is cheap because of the flexibility of the straw and the ease with which it is prepared. The buri hat does not last a great length of time, and fibers appear on its surface giving a rough, fuzzy appearance. Buri hats are made in every province and in hundreds of towns through the Islands, usually for local trade only, but in some cases for extensive domestic commerce, for, since it is the hat chiefly worn by the working and farm classes, it enters into commerce here most largely of all hats made in the Philippines. It is preferred to pandan on account of it being bleached white, although pandan is stronger. Because it has considerable body and stiffness, it is usually neither sized, blocked, nor trimmed, but is worn just as it comes from the weaver's hands. The provinces most noted for the production of buri hats are Pampanga and Tayabas. "Arayat hats," which include those from surrounding towns, are of double straw, coarser and cheaper than the single-straw, "Mauban hats" which come from Mauban, Tayabas, Lukban, Mahayhay, and several other towns in the Tayabas and Laguna de Bay region. Mauban hats are exported via Pagsanhan, Laguna. Weavers usually sell them in lots of eight (terno), and that unit is kept in the market, which occurs on Tuesdays and Wednesdays.

One sees a few buri hats worn by women in the United

States, but the hat is more suitable for cheap summer trade along the seashore than for a higher-class millinery trade. Although many buri hats are exported, there is not enough profit in them to make them rank as an important export hat in comparison with bamboo and buntal. Their importance will consequently remain in their large local use.<sup>1</sup>

#### THE KALASIAO OR POTOTAN HAT.

Kalasiao hats are produced from the midribs of the unopened buri-palm leaf in but two chief localities in the Philippines, namely, in the town of Kalasiao, Pangasinan, and in Pototan, Iloilo Province, and neighboring towns, such as Dumaraao, Kapis. The process of making the hat in Pototan is as follows: The unopened leaf is cut early in the morning and when there is no moisture on it. The straw for the hats is obtained in March, April, and May. The leaf having been cut, the leaflets are separated and spread out like a fan and placed in the morning or afternoon sun to dry, but never in the hot sun of midday, because the straw obtained would become brittle if dried too quickly. For like reasons stripping is done in the night or in some moist, shady place. The leaves are removed from the midribs by drawing them

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<sup>1</sup> Buri sleeping mats (petates) are also woven in every province of the Philippines and enter very largely into domestic commerce. While there are a number of towns excelling in their production and exportation, the best in quality and design are those from Romblon. Buri mats are also exported for use as wall decorations, for they are not strong enough to be used on the floor. For the export trade the Moro mats, which are gathered at Kagayan de Sulu, are considered the best both in design and in strength, being woven in two parts, the under mat coarser than the upper one and not colored. These mats have occasionally come to Manila for sale during the carnival, but are difficult to obtain. Romblon mats are often woven in sets of different sizes for the table, just as doilies are made, a large one for the center and smaller ones of the same pattern and proportions for plates and glasses, respectively. Buri straw is also very important in the making of bags (bayones), which are used as containers, particularly for sugar and rice. Hand weaving with this straw has been encouraged in the schools and, besides the above-mentioned articles, many others such as baskets, fans, napkin rings, book covers, and the like, are produced. As with bamboo, small hats are exported to be used as dolls' hats.

between two knife blades set in wood. The midrib is divided into two parts and dried in the sun for one day. Each part is split into straws, which are cleaned by passing them between the thumb and a sharp knife until they are very fine. The pith can not, of course, be used for this purpose. Weaving is done in the early morning or late in the afternoon or evening. Hats of the finer grades take from six weeks to three months to complete, but the more common hats require about one week. Moonlight is the best for weaving, as the strips do not become brittle. The hats are woven double or even triple. They are not produced in sufficient quantities for extensive export outside the province.

In Pangasinan Province the production of hats from this straw is almost limited to the town of Kalasiao. The process there is much the same as in Pototan, except that, since the buri palm is not found in abundance around Kalasiao, the buri-palm midribs must be imported from adjacent towns to the south. Bundles of the dried and split midribs are therefore brought in in considerable quantities from the towns of Bayambang, Bautista, San Carlos, Villasis, Mala-siki, Urbiztondo, and Urdaneta. In Kalasiao the midribs are again split into very fine and thin pieces with a knife. The straws thus obtained are run under a stripping knife, which reduces them in thickness, and between two knife-edges set in wood, which reduce them to uniform width. It requires much skill and time to prepare the straw.

Kalasiao hats are woven in the "close" or "sawali" weave sometimes single, sometimes double, and are finished in much the same way as are bamboo hats except that the weavers often perform all the operations themselves. It is somewhat difficult to distinguish them from the bamboo hat, but upon close observation it will be noted that a few of the straws in Kalasiao hats are of darker color than the others and leave the impression of brown lines running across the hat. The darker straws are those taken from the outer part of the midrib, and straws from different midribs also differ in shade. Moreover the hats are often bleached with water and lemon juice and usually powdered

with sulphur by the weavers, the object being to produce a dull finish, quite the opposite from a bamboo or a rattan hat, which are supposed to have glossy surfaces. The process is as follows: The entire hat is dipped into water, well soaped, and scrubbed inside and out with an improvised brush of fine, short buri strips. Next the inside and outside of the hat are well moistened for half an hour with lemon juice, which is thrown over the hat by hand from a dish. The hat is then dried in the sun. At this stage a rice paste is prepared as follows: Rice is mixed with a slightly larger volume of hot water and, as soon as it can be handled, is transferred to a fine-meshed cloth and squeezed through. This fine rice paste is then mixed with a small quantity of cool water to make two mixtures of different consistency, one rather thin and the other medium. The hat is put on the block and the thinner rice paste applied to the inside and outside of the hat with the fingers. When dry, very finely powdered sulphur is applied, to the exterior only, with a rag and rubbed thoroughly into the hat with a seashell or piece of carabao horn. Another coat of rice paste of the thicker consistency is next applied with a cloth, and when dry the hat is gone over once again with the sulphur.

Many hats are taken from Kalasiao by middlemen, but often two or a dozen families will make hats for a month and then send some one to Manila to sell them. It may be stated that the weavers are a good deal more independent of the brokers than those of Baliwag.

The Kalasiao hat is rather more "nobby" than the bamboo hat, is somewhat stiffer, and hence requires less size in blocking. The finer varieties closely resemble the Panama hat, especially when sulphured or bleached, and are perhaps the dress hats most frequently seen on the streets of Manila. The coarser varieties are used to a great extent in Manila to make into stiff hats of sailor shape in imitation of straw hats. While Kalasiao hats are more expensive than the bamboo, they are considered better for this purpose on account of bleaching whiter and holding their white color longer than bamboo, and because the straw is tougher and does not crack on being bent at right angles.

The foundation of this imitation straw hat consists of an inner hat, heavily sized with white glue and surmounted by pieces of cardboard on the top of the crown and around the brim to give it stiffness. This under hat usually consists of a very coarse bamboo weave, but often old straw hats are used. Over this foundation is blocked a whitened Kalasiao hat. A ribbon is put around the outside, a sweat band and trimmings fastened to the inside, and a very pleasing hat is produced ranging in retail price from ₱2.50 to ₱5 in Manila.

Kalasiao may be rated as the rival of bamboo. Its advantages over the latter are that it is more stylish; that, though taking longer, it bleaches better and holds the bleach longer, and that it is tougher. Its disadvantages are that it is dearer than bamboo on account of the difficulty with which the straw is prepared, and, for foreign commerce, that the same hat is made in other countries very much cheaper. There is a hat from Mexico in the United States market which looks much like Kalasiao, and which is a great deal cheaper. For these reasons it is the general opinion that the Kalasiao hat will be of local commercial importance only, with a small demand in the export trade directly with foreign retailers. One retailing and exporting house in Manila makes a good business of selling locally and exporting the bleached hats, and it considers that the hat should enter the trade only when bleached. Of late, Kalasiao hats have also been made with narrow bands of "over-and-under" weave running around them, the effect of which is very good in the bleached hats. Hats are also being made entirely in the open style, for, although bamboo would break in such an operation, Kalasiao is tough enough to stand the bending necessary for this weave.<sup>1</sup>

#### THE BUNTAL OR LUKBAN HAT.

Buntal straw, which is extracted from the leaf stem (petiole) of the opened buri leaf, is produced in the largest quantities in Tayabas Province and upper Laguna. Tayabas town and Sariaya are the largest producers of the straw,

<sup>1</sup> Kalasiao straw is also made into cigarette cases which are of great beauty on account of their fineness and softness.

although others such as Candelaria and Pagbilao are also important in the trade. It may be stated that buntal straw is produced in the district around these towns with the town of Sariaya as a center. The production of the straw requires considerable dexterity resulting from practice. A novice breaks the fibers before extracting them. The farmers in the country districts (barrios) extract buntal, particularly those owing or renting small pieces of land without enough coconut trees thereon to support them. Sometimes the buri palms are on their own lands and sometimes they must rent them or buy the stems. In the towns there live men who make a regular business of going out into the country buying buri stems from the owners of palms, extracting the fiber, and bringing it back to the towns to be cured. Buri stems range from two to three centavos each in price. Sometimes strippers rent palms at a lump sum per year, just as the buri palms are rented or sold for their tubá in Bulakan Province. The stems are taken from palms so well matured that the bases of their lower petioles are at least six feet from the ground. Such palms are about 8 or 9 years old. On poor soil the trunk and stems are liable to be smaller in diameter and length, and the palm not so high. Fiber obtained from such palms is inferior in length and strength and is not so flexible or tough as that obtained from trees grown on better soil. It is useless to try to obtain fiber from the stems which are beginning to dry, since it is held too tightly by the drying pulp and it is difficult to separate the fiber from the younger stems since it is not strong enough. Not all buri palms yield stems from which fiber can be extracted. If one stem of the right age fails to yield, it may be presumed that all other stems of that particular palm will also fail to produce, and it is therefore considered useless to cut off any more. But if one stem yields up its fiber, the other suitable stems are also cut. Many theories are advanced for the nonproductiveness of certain palms. For instance it is stated that if stem cuttings are not made when the palm reaches the right age the fiber will become gradually harder to extract as the tree becomes older, even from stems which should be suitable, but if the cutting of stems from the tree be commenced

when it reaches the right age and the cutting be continued, the palm will continue to yield good fiber. It is also stated that if stems do not yield fiber in the full moon it may be that fiber can be obtained from that particular palm during the new moon, and vice versa. Just where truth leaves off and folklore begins concerning nonproducing palms is difficult to determine. The stems are cut twice a year from the palm, and from three to eight can be obtained at each cutting, giving a total production from one palm varying from six to sixteen stems.

Around the town of Tayabas the buri stem is cut square at the base. The leaf is removed from the top and there is left a stalk usually about five feet in length. If it is too long the stalk may be cut into two pieces of three to four feet each. The thorns are removed from the edges. About six inches of the skin from the two convex sides of the lower part of the stalk—that is, the wider part of the stalk nearest the trunk—is peeled off and the fiber and pulp thus exposed are thoroughly beaten with the blade of a bolo until the fibers separate in bunches. A strip of skin on the upper side is pulled away from the end almost to the beaten portion of the stem, and with this strip the stem is tied firmly to a post or the crosspiece of a bamboo fence with the end on the ground. Sometimes two wooden or bamboo horses are used. The stripper selects a bunch of fiber and pulp from the beaten end, varying with his strength and dexterity and the condition of the stem, and slowly but steadily pulls out the fiber. From one to five fibers are obtained, according to the stem and the dexterity of the stripper. It is obtained in the form of moist, light straw-colored, round fiber, depending in length upon the stalk used. One would naturally think that the process of obtaining the fiber would be much lightened by beating the whole stem. If this is done, however, the straw obtained will be discolored, as in the case of abaka, which becomes discolored if bruised in the process of stripping. The fibers thus drawn from the stems vary in their diameters from very coarse to very fine. They are not as yet sorted, but are tied into small bundles (manojos) as big as the thumb and

carried on the same day to the town or to the house of the farmer. Stripping must be done in the shade and the fiber obtained must be kept out of the sun. The best stems yield three bundles of fiber, the poorest half a bundle. If the stem is good and the stripper is expert he can obtain six bundles or more in a day, but if the stem is hard to strip and the fiber breaks he will obtain only four or five. Town strippers usually go out about four times a week or every morning, using other days or afternoons to cure the straw. The stripping of buntal fiber is somewhat hard on the hands, since they are liable to be cut in the process.

The curing of the fiber must take place within a few hours of stripping, but differs for different persons and places. Sometimes the bundles are placed in jars containing fresh water drained from rice before cooking it, and left for two or three days, after which they are kept for four days longer in a covered jar containing vinegar. They are then washed in fresh water, as that of a running river, and allowed to dry in the shade. This process cures and bleaches the straw and makes it more pliable. Sometimes the town strippers carry a bamboo tube filled with a mixture of half vinegar and half water with them. Into this they place the fiber for from one to two weeks. It is then plunged into boiling water, removed when the water again boils, and dried. Another method consists in soaking the fiber in water and then boiling it in vinegar water. The best straw comes from Sariaya in bundles the size of the little finger. One man is reported to make excellent straw there, but refuses to divulge the secret of his process to other strippers.

Farmers who strip buntal in the country sometimes bring the bundles to Lukban, but usually brokers from Lukban go through the country buying them. The thumb bundles sell at about five for a peso outside of Lukban and at about four for a peso in Lukban. Market days are Friday to Sunday. Lukban is the chief producing town, and while a few hats are produced in other places, as in the town of Tayabas and in Mahayhay, Laguna, yet such hats are usually unfinished, and all are sent to Lukban to be sold.

In the hat-producing towns the straw is sorted deftly

and accurately between the weavers' fingers into about eight grades of different diameters. Straw of medium fineness is the largest part. There is very little fine straw and there is considerable coarse material. The straw is flattened and made more pliable by running it between a sharp-edged piece of bamboo, glass, or like material and the thumb. The finest straw is always treated in this way, but straw is often rolled beneath a crushing machine such as is used to crush copra and sugar cane. It consists of a round log resting in the grooves of two or three horses. The log is heavily weighted down with stones in the middle and is made to rock in the grooves. The straw is placed in the grooves and is thus flattened. Sometimes the crown top is thus treated. The process is liable to crack the straw so as to make it split apart easily, and the other method is better for finer straw, although it takes longer and is more laborious. The straw after being assorted and flattened, is woven in the "over-and-under" weave, a process to which buntal readily lends itself because of its toughness. The hat is kept tied with buntal straw on the block until the brim, but not the edge, is finished. Weavers usually set the block with the hat on it in a cloth ring while weaving.

Division of labor is very extensively carried out in the finishing of the hats. The edge is woven by children and inexperienced weavers, and it is the usual sight in Lukban to see women and children with a stack of unfinished hats on their heads from which they take one to work on as opportunity permits. Edgers receive from 5 to 40 centavos per hat, but do not tighten the straws to make the brim curl. The hat is returned to the owner untrimmed and is scrubbed in clean running water with coconut husk or, if it has become mildewed from the block, with hot lemon water. It is then dried. The finishing touches on a buntal hat are given by ironing it with a hot iron on a block. This ironing is very important to its appearance and often two hats of the same grade will differ from each other greatly in apparent grade on account of the ironing being poorly done in one case. Local dealers often keep their hats unironed until they are called for. The dry hat is placed on the block and pressed with a warm iron over a

dampened cloth. The ironer also finishes the hat by tightening the protruding straw ends to make the brim curl and by trimming the ends off with a pair of scissors. The washing, ironing, and trimming of medium-grade hats costs 15 centavos. The system by which these different steps is done is peculiar. Hat brokers must arrange for the distribution, and, although no written record is kept of the hats given to and returned by the workers, no losses seem to occur.

Buntal hats are fairly stiff and require little or no size in blocking, for they retain almost any shape given them by steaming and ironing. In fact, hats blocked in Manila are usually sized too much and made too stiff to remain on the head in a wind. The brim of a well-blocked buntal hat should bend in the wind instead of offering enough resistance to it to blow the hat away. Buntal hats differ very much in appearance from Panamas. They have a silky texture, a light appearance on the head, weigh little, and are of a light straw color, which is retained with bleaching. They are too open in weave to offer any great protection from the sun in the Tropics, though many are worn in the Philippines. While the straws are strong, the open method of weaving them does not permit them to support each other; hence the lower grades often tear apart, commencing at the edge until the hat is spoiled. If care, however, is taken to force the straws back when this begins, their separating can be retarded. This working apart of the material is not usual in the better-woven hats, for buntal hats of the two higher regular grades have been worn a considerable time in the Philippines, taken to the United States crumpled up in a trunk, and brought back again apparently none the worse for rough handling and wear except for the usual darkening in color. In comparison with Panama, bamboo, and Kaliasao hats, buntal hats are long-lived. The straw bleaches about as easily as bamboo, but does not hold the bleach any better. As with other yellow straws, the hats must be bleached when cleaned in order to retain their light color.

An easy commercial grading of buntal hats is into extras and from No. 1 to No. 4. This is the usual grading followed, and is based on fineness of the straw and weaving. Some hat merchants in Lukban deal only in the finer hats

and have their own grading. The coarser the straw and the more open the weaving the lower is the hat in grade. Hence a poorly woven hat in which the straws are not compact may be rated in the same grade as another of coarser straw but more closely woven. Buntal straw, unlike other Philippine hat materials, can not be reduced in fineness, and consequently the production of the finer hats depends upon the amount of fine straw produced from the leaf stems, together with the number of expert weavers who can produce the closely woven hats. In the sale of buntal hats brokers insist that the coarser grades be taken with the higher. If the finer hats only are bought, one must pay a considerable advance for them. The brokers are forced to do this, since otherwise they would be unable to get rid of the lower grades, which they in turn must buy from the weavers. Over three-fifths of the hats produced are of grades Nos. 2 to 4, the most being of grade No. 3. The others are divided equally into extras and grade No. 1.

The hats are for the most part sent to Manila either via Pagsanhan or via Santa Cruz, Laguna, and the same trade conditions apply as in the bamboo-hat industry with regard to dealers and exporters. Very few hats are sold in the Pagsanhan market, most of them going through on consignment. There seems to be no definite day for selling the hats in Lukban. The buyers are constantly canvassing the town in search of hats, and competition is quite noticeable. The demand for buntal hats has been so great in the last few years that the weavers can be very independent, and prices have risen considerably. This large demand has caused a larger proportion of lower-grade hats to be woven and a lessening in the relative number of fine hats. The lowering in general quality of buntal hats is by some considered to be a very serious matter for the future of the industry, for if continued a reaction may result in entirely stopping the demand. Besides making their profit on buntal hats, brokers buy and sell buri and pandan hats, which are also produced in the region. An insignificant production of buntal hats takes place in towns of Negros, Camarines, Ilokos, and other provinces.

The export demand for buntal hats is greater than the

supply, and all that can be obtained from Manila are shipped abroad, mostly to Paris and New York. These hats have long been used in the United States, but direct import has grown to large proportions only since the advent of free trade, the hats having been brought in from Paris previous to that time. Buntal hats are very popular in the United States,<sup>1</sup> and a growing market may be relied upon there.<sup>2</sup>

#### THE BUNTAL-SAWALI HAT.

Very lately, buntal straw has been imported into Baliwag and there woven into very beautiful hats in the Baliwag weave—that is, the “close” or “sawali” weave. Since the straw is much less pliable than bamboo, the weavers (and only the best weavers are able to work with the straw) have not taken well to it, for they are unable, as with bamboo, to sit and doze, or talk with their minds on something else, at the same time automatically weaving the hat. Hence at present very few hats are being produced (though the number is rapidly increasing), and those brought to Manila are rather expensive.

The buntal-sawali hat is, with the finer grades of buntal, by far the finest hat produced in the Philippines, being of a very beautiful texture, of a good straw color, possessing enough stiffness to be easily blocked with little or no size, and with enough weight to remain upon the head. It has great durability, since, in the method of weaving, the fibers support and strengthen each other. The hat will certainly

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<sup>1</sup> The writer took on a recent trip to the United States different varieties and grades of Philippine hats. The buntal hats were by far the most popular. In one fashionable men's furnishing store which carries them, the information was given that two buntal hats were being sold to every Panama. Buntal hats are seldom sold with a name connecting them with the Philippines. They are sometimes called “Bangkok,” sometimes “East Indian Panama,” or even “Italian Straw.”

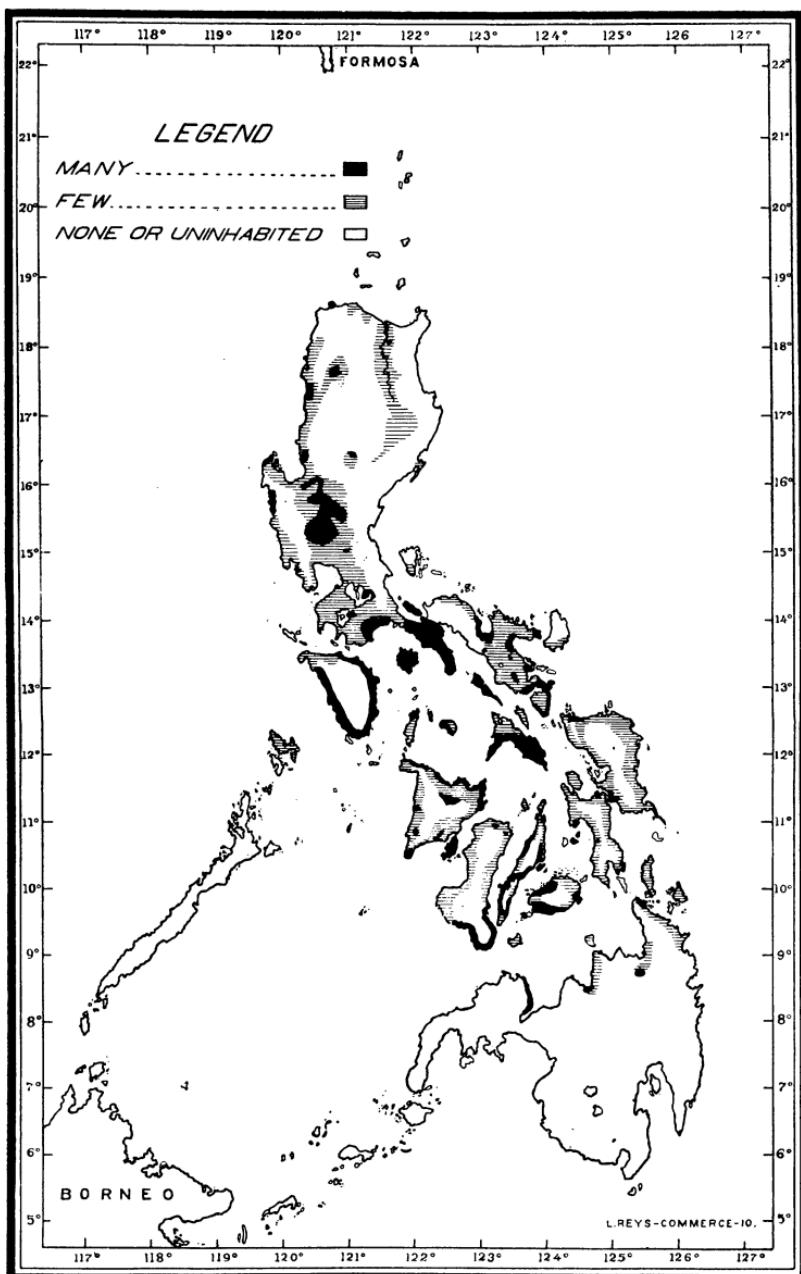
<sup>2</sup> On account of the large domestic demand for buntal straw in hat weaving, there has been no serious attempt as yet to export the material, though a flourishing export trade might be established provided production is large enough. It is sometimes locally used in the form of rough whisk brooms.

sell in the better markets, especially for women's wear, and, as the makers become used to its weaving and the production is improved in quality, lowers in price, and grows large enough for exportation, the hat should have a demand for export. For women's wear it should be woven as loosely as practicable so that hat pins may be stuck between the straws.

#### DISTRIBUTION OF THE BURI PALM.

In view of the importance of the three hat straws obtained from the buri palm, and of the need of buri straw in the schools and the spreading interest in the manufacture of buntal hats, the distribution of the buri palm becomes of great importance. Industrial teachers throughout the provinces now often have difficulty in procuring the unopened leaf or the cured leaflets, and at times have to pay too high a price for the raw material to make the buri hat worth weaving. The weavers of Baliwag and other towns who are interested in producing the buntal-sawali hat have difficulty in obtaining buntal straw from Lukban direct or from Manila brokers. If the buntal hat industry is to spread, it becomes necessary that the large buri areas be used for the production of the straw.

The map on the distribution of the buri palm, shown on page 40, was drawn from information on the provincial industrial maps furnished the Philippine School of Commerce by the division superintendents of schools and from material obtained from the Industrial Schedules prepared by the writer and sent out by the Bureau of Education. From these schedules information was obtained as to whether there were many, few, or no buri palms growing around each municipality of the Philippines, exclusive of the Moro Province. This map indicates that while there is a scattering of buri palms throughout the Philippines, there are two great producing areas on the Island of Luzon, that in the central part of the Pampanga Valley and that of southern Tayabas. These are the districts which are at present furnishing the greater part of the commercial raw



DISTRIBUTION OF THE BURI PALM.

material for Kalasiao, buntal, and buri hats, but the production of these straws can be increased many-fold in the two areas before the limit is reached. It is undoubtedly from them that any future commercial supply of buntal straw must come. The Island of Burias and probably Marinduque Island should be included in the Tayabas district. The Island of Mindoro is also well supplied with buri palms, as are the Province of Sorsogon and the Island of Masbate. In the Bisayas there are districts in Panay, Negros, Cebu, and Bohol where many buri palms are found.

#### THE RATTAN HAT.

Certain species of rattan are made into hats of very fine texture and great durability. These hats are made in the same districts as bamboo hats and are known by the natives as bejuco or uay hats. They are woven in the "close" or "sawali," weave and double, as is the bamboo hat, but can readily be distinguished from the latter on account of being much more velvety in luster, darker in color, and smoother to the touch. Moreover, a rattan hat has a number of darker straws running through it, while the straws in a bamboo hat are of fairly uniform color. This variation of color in the hat straws occurs in Kalasiao hats, but they can be readily distinguished from the rattan by their dullness. While rattan hats are perhaps the strongest and best made in the Philippines, their production is very small, chiefly because of the difficulty and expense attending their manufacture. The rattan is split and reduced to straw of uniform size in very much the same manner as in the preparation of Kalasiao and bamboo straws. The price of rattan hats varies from ₱8 into the hundreds of pesos, but even the lowest grades are beautiful, durable articles. Like bamboo hats, they are somewhat light and limp and require considerable size, but, unlike them, they will stand many cleanings. Commercially, they are of no great importance at present, and their high price would seem to prohibit large demand, though they should be important in export trade direct to the retailer.

## PANDAN STRAWS.

## THE PANDAN HAT.

There are about thirty different pandans in the Philippines, all more or less adapted to hat and mat production. The most used, however, are sabutan and the common pandan.<sup>1</sup>

Pandan hats are made in nearly every province in the Philippines. They are sometimes called "balangot," since they were the first hats to take the place of the less strong hats made from balangot straw. The plants are often cultivated in damp, shaded places, and the leaves, which are taken when bent down toward the ground, are sometimes bought by those not cultivating them. Some six leaves are removed from the plant every half year. The spines are cut from the back and the edges and the leaves are placed in the sunshine for half a day, after which they are stripped into straws, as explained in the case of buri. The straw is placed in the sunshine for another half day, and is then rolled under a log weighted with stones, as explained for buntal, or is drawn around some smooth surface. The straw, being cured, is made up into bundles, which are articles of commerce. The chief exporting towns for hats are Luisiana and Kabinti in Laguna Province, whence the hats reach Manila via Pagsanhan, Laguna. They are sold in lots of eight. Pandan hats and mats are an important export of Dao, Antique Province, to Iloilo. The hats are woven in the "over-and-under" weave, and are very important in domestic commerce. For export trade, they are of little importance,<sup>2</sup> on account of their greenish grey or brown color and coarse texture and weight. They are con-

<sup>1</sup> Bariu (buruiu; boreo), which is somewhat similar to ordinary pandan, and karagumoy, the leaves of which are broader and thicker than bariu, are used in the Bikol provinces to make into hats, mats, and baskets.

<sup>2</sup> In the year 1907 about \$42,000 United States currency worth of pandan hats were exported from Java to the United States alone.

siderably stronger than buri hats,<sup>1</sup> however, and resist water better, and are therefore extensively used in the Philippines by the laboring classes, commanding a price equal to that paid for the buri. It is stated that straw dried quickly in the sun becomes brownish green in color, while that dried slowly, as often occurs in the wet season, is yellowish green. Pandan straw is not bleached, and it is dyed with difficulty.

#### THE SABUTAN HAT.

Sabutan straw is produced from the leaves of a species of pandan of the same name at present growing wild and cultivated in certain localities around Laguna de Bay, such as Mabitak, Siniluan, Pangil, Pakil, Pililya, and Tanay, where the most hats are made, and reported in many other localities (particularly in the Bisayas), in most of which the plant is utilized but little, if at all. In a few towns the name "sabutan" is applied to other hat materials such as straws, prepared from grasses. The question of the distribution of sabutan is not so important as that of the distribution of the buri palm, since it can be cultivated with ease on almost any soil. There are at least two patches of sabutan in and around Manila grown for the purpose of hat production. One of the owners states as his belief that the plant should be grown in well-drained soil irrigated by ditches, for, while it requires a great deal moisture, standing water will rot it, and if grown with too little water the leaves will take too long to mature. With irrigation the planter thinks sabutan should produce leaves for stripping in about one year. There seems to be a large field here for experiment in order to ascertain the best methods of cultivating the sabutan plant so that the widest

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<sup>1</sup> Pandan petates are stronger than those of buri and are said to be cooler. Pandan mats are also suitable for floors, pillow tops, for the table, etc. Pandan sails are often used on native boats. Pandan is also made into bags (bayones), telescope baskets, and other articles. Mahayhay, in Laguna, has a large export of pandan mats and telescope baskets via Pagsanhan. The mats are often trimmed with colored buri straw on account of the difficulty with which pandan is dyed.

leaves yielding the lightest-colored, longest and most pliable, and strongest straw, shall be produced in the shortest length of time.<sup>1</sup>

As before stated, the sabutan grows wild along the eastern shores of Laguna de Bay, where the industry is now developed to a commercial scale, but most of the straw used is produced from plants grown for the purpose by the strippers around their homes or in the fields. The oldest town in this industry is Mabitak, Laguna, where the work has been done a great number of years. The next most important town is Piliya, Rizal, where the making of hats has gradually supplanted the manufacture of mats from sabutan. A few are also made in Pakil, Laguna, and in other towns, as Longos, Lumban, and Siniluan.<sup>2</sup> Sabutan is generally planted at the beginning of the wet season around Mabitak. The plants are propagated from the suckers, which grow from the base of the stalk. In Mabitak there is a superstition that if iron be used in planting sabutan the leaves will be hard and brittle, consequently a bamboo stick is used for the purpose of digging the hole. Sabutan is planted around the edges of and within banana, coconut, and such patches where there is plenty of shade. Madre-de-cacao (a quickly growing tree often used to shade cacao) is sometimes planted with sabutan so as to shade the matured plants. Little cultivation is attempted.

Although the general method of producing the straw is

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<sup>1</sup> The advisability of producing Panama straw is very doubtful, since imitation Panamas bring such a small price.

<sup>2</sup> In Tanay, Rizal, many mats and few hats are made. A few cigarette cases are also produced. These are the most durable and finest mats woven in the Philippines, selling up to ₱100 apiece. Native vegetable dyes are used, such as the heart wood of sappan (sapang; sibukao), and dried pods of the aroma, anatto seeds (achue-te; attiotes), turmeric (luyang dilao; kunig; kalawag), and indigo. Mordants must be used in fixing the dyes. In Mabitak, coarse sabutan straw is sometimes used for making mats and rice bags, and the straw cut in finishing hats is made into rope which is considered stronger than abaka rope and is used for tethering carabaos. The mats are excellent for floor mats, pillow tops, and the smaller ones for use on the table and the like. Mats are also reported made in many parts of the Bisayas.

the same in all localities, there have grown up several minor details which differ from each other. Not only different towns but different households in the same towns have various details which are peculiar to them. The plants come into bearing about two years after being planted. The long narrow leaves, like other pandans, have three rows of thorns, one on each side and one on the back. Those leaves growing in the shade are considered the best, since they give thinner, more pliable, and better-colored straw. The leaves used are over a meter in length and are bent toward the ground. Fully matured leaves are over two meters long. From two to six leaves are taken every month from a plant, and care must be used that the leaves do not become too old, else poor straw as to color and thickness and pliability will be produced.

The straw is prepared especially in the dry season. The central thorns on the back of the leaf are removed by cutting away the midrib. There are left two lengths about an inch in width, from which the outer lines of thorns may or may not be removed according to custom. The lengths thus obtained are in some places left in the sunshine and wind for from five to twenty minutes to render them more flexible, in others cut into straw immediately. For this purpose there is used an instrument consisting of a narrow wooden handle, about an inch wide at the base, into which narrow sharp teeth have been fixed. These comb-like instruments are made by silversmiths. The best have teeth of steel, though brass is also used. In Pakil the whole instrument, including the teeth, is made of hard woods. The point of the withered leaflet being cut off, the base is grasped in one hand, the inside of the leaflet being turned toward the operator. The comb-like instrument is stuck into it an inch and a half from the end of the base and the teeth held against the first finger by pressure of the thumb. The leaf length is then drawn up by the other hand and is cut into straws depending in width upon the fineness of the comb used. If the leaves are too young they will break in this process. Holding the uncut base in one hand, the stripper runs the straw between his fingers and a sharp-edged, ruler-like piece of bamboo held in the other. One

weaver runs the ruler over the under surface four times and over the outer surface three times. This process removes moisture, prevents wrinkling, and makes the straw more pliable. In some places it is omitted. Sometimes the straw is first hung in the shade for a little while.

Eight or ten lengths of straw with bases attached are rolled up into a bundle and placed in fresh water in order to remove the coloring matter—in some places in clear, running river water, in other places in a can of clean fresh water up to twenty-four hours, changing the water several times. In the last method the process is discontinued when the water remains clear. The bundles are then placed in cold vinegar water, or lemon water or water to which green tamarind fruit has been added to make the color of the straw lighter and to toughen it, and brought to a boil. Bamboo is used as fuel, as the fire is not as hot as a wood fire. The length of time boiling continues differs. One good authority states that the boiling should be stopped when no odor of sabutan can longer be detected in the vapor, which occurs after about fifteen minutes' boiling. This authority also states that the straw should be removed when it takes on a reddish hue. Many women put the straw into clear boiling water to which nothing has been added. After this process the straw is allowed to cool, is washed several times in clean, fresh water, and is spread in the sun to dry, whereupon it assumes a gray color. If there is no sun the cooled straw must be kept in fresh water, which is changed every twelve hours until the sun appears. If a greenish shade is obtained, the process has not been correctly carried out. Even the most expert makers of straw will sometimes produce "off-colored" material, but it is usually believed that the greenish shade comes from the boiled material drying too slowly, as happens on rainy or cloudy days. Straw from dark-green, thick, old leaves or those grown in the sun is often reddish brown in color. The straws are kept wrapped in clean cloth so that the air and humidity can not enter. Weavers who do not produce their own straw are able to buy it of other makers, but it is not sold in the market. The straw turns reddish after keeping some time (about six months is

the longest), and therefore weavers are careful to use up their supply.

Before hats are woven, it is usual to run the straws between the fingers and the short, sharp-edged piece of bamboo, as explained before. It is then cut from the base. In Pakil the straw is left in the air for a couple of nights before weaving it, so as to make it moist and pliable. Sabutan hats are woven with a double straw—that is, two straws are put together so as to give the hats greater strength, body, and stiffness. The upper side of the straw is glossy, the under side rough. In making the double straw the two rough sides are placed together, so as to expose both glossy surfaces. The “sawali” weave is used, though the coarse varieties are sometimes woven in the open style, resulting, however, in a rather inferior-looking article. The crown is usually not woven on a block, but is held in the lap weighted down by a stone. When the brim is commenced, however, the crown is forced on to a moistened block. In finishing the edges of the hat the straw is tightened. This causes the edge of the brim to curl, and the straw used must be strong enough to withstand the strain without breaking. This is the process in which most bleached straws fail. The finishing touches consist in dusting the hat with “rice powder” to improve its salable appearance. Division of labor seems to have entered but little in the making of sabutan hats, which are usually produced entirely by one person. However, many of the weavers can not finish the edge and must have it done by those who understand it.

Sabutan hats have great strength and lasting qualities. They have body and stiffness and, even more than buntal hats, will retain the shape into which they are blocked without the use of size. Their natural gray color is unique and beautiful.<sup>1</sup> Since imitation Panamas are very poor-paying hats, it would seem best to encourage the production of sabutan hats in the natural gray color. Too often, as explained, unless care be taken in the preparation of the straw, it has a greenish shade which is not pleasant to the

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<sup>1</sup> Of the hats taken by the writer to the United States, sabutan hats were much admired on account of their gray color.

eye. The hats, too, should be woven of straws of the same color, care being taken to see that no "off-colored" straws run through it. Sabutan hats made of such unbleached straws will last through many more cleanings than the commercial Panama.<sup>1</sup> It must be noted, however, that Panama hats are never bleached pure white, since bleaching greatly injures the straw, but are left of a yellow shade. If sabutan is to be bleached at all, therefore, it should be bleached pure white, when it will be particularly adapted to the millinery trade<sup>2</sup> and will meet domestic requirements for white hats. Anything short of a pure white color would have a yellowish shade and stamp the hats immediately as an imitation Panama. Sabutan is, however, bleached only with great difficulty and expense. In fact, any bleaching agent used must be so strong that the shrinking in the fiber causes the hat to become very loose in texture, flabby in the brim, and weak. If, however, the straw can be cheaply bleached so that it will be strong enough to withstand the strain of being woven, a compact hat with body and strength and a pure white color can be produced. As yet no such bleaching process has been discovered, and the field for experiment is still open.<sup>3</sup>

As stated, the industry is very old in Mabitak, but it is only lately that finer grade hats in any commercial quantity have been produced. Since the industry is still in its infancy, relatively few hats are produced, and those for the domestic market only. Since the industry is growing and spreading out to new households and towns, there are many new and inexperienced weavers. Consequently the number of lower-grade hats produced is quite large,

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<sup>1</sup> Practically all Panamas are bleached, and are therefore destroyed by a few cleanings.

<sup>2</sup> In Japan pure white hats which appear like sabutan in weave, are particularly noticeable for their beauty.

<sup>3</sup> Experiment has been made with sodium-peroxide and concentrated sulphuric acid at the Bureau of Science, and, while pure white straw has been obtained, it is not strong enough to withstand weaving. By others sodium-peroxide alone has been tried, but the resultant straw has a yellowish shade. It may be that better results will be obtained by bleaching the straw before it is cured and the color becomes set. Such experiment is now under way.

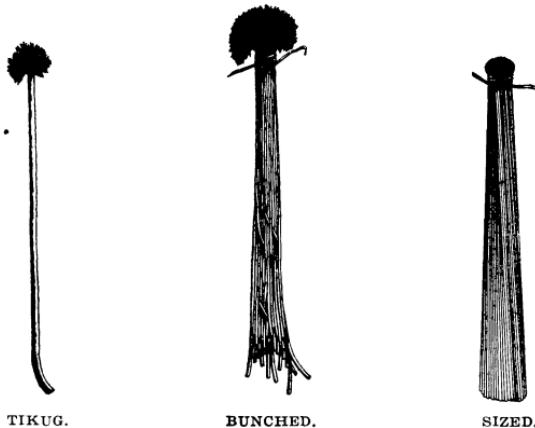
with rather few of the finer qualities. The coarser sabutan hats are not particularly pleasing in comparison with other varieties of hats of the same price and grade. Sabutan prices range from 20 centavos to ₱25 from the weaver. Most of the production finds its way to Manila through Pagsanhan, Laguna. Though outside merchants sometimes visit Mabitak and other towns, most of the hats are bought up by local brokers. The hats are packed in tin cans and taken in lots of eight to the Tuesday and Wednesday market in Pagsanhan. Cans are returned when the hats are bought. Finer hats are usually bought singly. Merchants (mostly Chinese) or their representatives from lake towns, Cavite, Manila, and other places are the takers of the hats. Sabutan hats are also reported made in many other parts of the Philippines, particularly in the Bisayas, but the production is of no great importance in any of these localities. Often the species of pandan used is not sabutan. The straw is sometimes imported.

On account of their color, strength, durability, body, and weight, sabutan hats are particularly adapted for men's wear. They are good hats for the Tropics, affording excellent protection from the sun, which fact, perhaps, accounts for their growing popularity in the Philippines. In the provinces of central Luzon they seem to be gradually supplanting the better grades of buri and pandan hats worn by the laborers, since a sabutan hat has such a long life, while the other two varieties do not last a great length of time. The fact that trade in sabutan hats is so largely in the hands of Chinese would indicate their domestic importance. In fact, it would almost seem that sabutan hats are not destined for a very large wholesale export trade. Certainly they will not be important for export unless their price is reduced. Grade for grade they are at present the most expensive hats made in the Philippines, though it might be stated that their durability more than offsets their high price. At present the European market is being supplied with sabutan hats, or a hat similar to them, from Madagascar at a price below that asked here. However, on account of free trade, there may be a good market for these hats in the United States, particularly if it is sought

directly with the retailer there. As already stated, it would seem best, in view of the decadence of the Panama in popularity, to push the sabutan hat in its natural grey color. As yet there has not been even a fairly large export to the retailer directly, and consequently nothing definite can be said on the subject from the experience of dealers.

But for domestic commerce the sabutan has qualities which fit it to be the chief hat worn in the Islands. The plant can be grown anywhere and quickly, the straw is easily and cheaply produced, and the hats offer better protection from the sun than any other blocked hat. There is no reason why the plant should not be grown and the hats woven in every town of the Philippines. If the industry continues to spread as it has of late, such a condition may be approached. In this connection it should be noted that the widespread weaving of buri hats, the raw material for which is often obtained with difficulty and from a distance, is a growth of later times. It is certain that the increased output of the sabutan industry for some time to come can be used in the Philippines.

#### THE TIKUG HAT.<sup>1</sup>



#### THE PREPARATION OF TIKUG STRAW.

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<sup>1</sup> Most of the information presented concerning tikug hats is taken from "A Report on the Production and Location of Tikug Mats and Hats in Samar," prepared by J. F. Minier, supervising teacher at Orás, Samar, for the Director of Education.

Tikug is a long, smooth, slender, round, jointless grass that grows in low places, especially in the rice fields, where it is found in profusion. Its stem has no leaves, and when dry can be made very soft and pliable. When it is fully grown it sometimes reaches the height of nearly two meters. The finer straws are about one-half millimeter in diameter, while some of the larger ones are fully three times that size. At the top of the stalk grows a cluster of small, brown seed balls. Tikug grows very rapidly from a seed, becoming fully 35 centimeters long in from two to three weeks. There are two classes of tikug, one that grows in large clusters and the other that is found among the "tanalug" grass. The former is generally short, coarse, and stiff; the latter is stronger, longer, softer, and more pliable, and by far the most suitable grass for weaving the best grade of "tikug goods."

This grass is known in most of the Bisayas and is also reported from several other districts, but any large production of hats and mats from it is mainly confined to the Islands of Leyte, Samar, and Bohol.<sup>1</sup>

Up to a few years ago the grass was but little used in Samar, though there were a few people who could make articles from it. Since American occupation it has been widely used, for the work was introduced into the schools, and not only has the quality of the work greatly improved but many new articles have been made from the material.<sup>2</sup>

When pulling tikug the whole stalk can generally be obtained by grasping it a short distance below the top. It

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<sup>1</sup> Information on the distribution of tikug and its manufactures is from the Industrial Schedules of the Bureau of Education.

<sup>2</sup> Mat production is the chief use of tikug. These mats are of two kinds, those made on looms with an abaka warp and which can be called matting, and those woven as are buri and pandan petates in the "over-and-under" weave. The mats of "over-and-under" weave can be bought in the retail stores of Manila. The short strips of matting sent to the carnival of 1910 were readily sold. These mats are often made of colored straw, and those woven by hand in the "over-and-under" weave usually have a color design. The mats are adapted to wall decoration, for the floor, and for table use. Slippers, book bags, hand bags, book covers, doilies, cigarette cases, pocket-books, and other articles are also woven from tikug.

is made up into little bundles containing from forty to sixty straws tied a little below the tops, and then spread out in the sunshine to dry. When there is good sunshine it takes about one week to dry tikug properly. While it is drying care should be taken to keep the rain from it, and not to allow it to remain out all night where the dew will reach it; if it becomes wet, it will mildew and then turn black or brown. With care in the drying of the straw, white material can be obtained, but if proper care is not exercised the tikug will be of a yellowish color. The best way to obtain white tikug is to boil it in water while still green for ten or twenty minutes, depending upon the amount treated, and then dry it as above prescribed. The straws are of different diameters and lengths and have to be sorted. Those of nearly the same length and diameter are put in a bundle, and several grades thus made. After the straws have been put in their proper bundles of from forty to sixty straws each, they are trimmed—that is, the seed clusters at the top and the uneven roots are cut off. The straws are not ready to be used, as they are stiff, some are bent, and others are round. They must be flat and soft before they can be woven. The straws are made pliable by flattening them. The workers take a blunted-edged stick in one hand and with the other they pull the straws between the thumb and the stick as is done with buntal straw. It is necessary that all straws be pliable else during the weaving process they will break easily. Tikug dyes easily and well.

Tikug hats are woven in the "over-and-under" weave, and different grades result from the width of the straw used and the care with which the hat has been woven. The very fine hats are made of straws a little more than 1 millimeter in diameter, are light in weight, and are neat, serviceable hats, but few of them are made, since it is quite difficult to get the fine straws. They are made by weavers for their own use, as are also hats of straw varying in width up to 3 millimeters. The coarsest hats are made of straw of from 3 to 4 millimeters in width and bring about the same price that buri hats command. Tikug hats, like pandan and buri hats, are worn by the laborers in

the Bisayas. Two export centers are now known. There is an export of these hats from the Island of Bohol, where weaving tikug is the chief industry of two towns. The town of Basey, in Samar, exports mats and hats, some of which are brought by brokers to Manila. Most towns in Samar produce the hats. Tikug hats are reported as selling readily for women's wear in Manila, but it is seldom that they can be obtained. Nothing definite is now known as to their durability and other qualities, though the mats made from tikug are very durable. In point of fact, the industry is in its infancy. The hat seems to answer the requirements of cheapness and durability for a local hat for laborers. Whether it will be an export hat can only be determined by the export of trial lots.

#### MINOR PHILIPPINE HATS AND HAT MATERIALS.

Besides the materials discussed, there are many others used in the Philippines to produce hats.

Nito, a long brown or black fern stem, has for its principal use the trimming of articles of rattan and bamboo and the making of salakots. It is, however, in certain towns, such as Kalasiao, Pangasinan, and Daraga, Albay, made into straw in much the same manner as is rattan, and woven into blocked hats, very shiny in appearance and of a dark-brown or black color. These hats are rather expensive on account of the difficulty with which the straw is prepared and, while it might be that they could be made the fashion, their limited production would prevent their ever being of any commercial importance.

In several towns throughout the Philippines the dried fibrous interior of the vegetable sponge or luffa (patola; kabatiti) is used to sew into hats. These creations were rather popular with women in Manila for a time and might become a passing mode in the millinery trade.

Coarse rice-straw braids are made and sewn together into hats, being made especially in the Ilokos provinces and in Kagayan, Pangasinan, and other provinces to which Ilokanos have emigrated. This is also done with buri braids.

In many provinces the boiled stalk of cultivated<sup>1</sup> and wild vetiver grass (anias-de-moras; moras; mora; anias) and similar grasses are sewn into hats in much the same manner as is straw braid. In Mexico, Pampanga, the vetiver grass is called "anias," and, though a fairly large number of hats are made, they can not be said to have commercial importance.

Balangot, a cat-tail growing in damp soil, is prepared and woven into hats in several provinces, but on account of not being very strong these hats are but little used, although a number of years ago, it is said, they were the principal hats, outside of salakots, used in the Philippines, by laborers. The name "balangot" is still applied to pandan hats, since they were the first of the present hats worn by laborers to take the place of the weaker balangot.<sup>2</sup>

In the subprovince of Abra braids are made from straw prepared from the bast of a plant called "lusuban." These braids are sewn into hats.

In many parts of the Islands, particularly in the abaka region, strips of sinamay are sewn into hats, which are of some local trade importance.

In foreign countries abaka of fine quality is woven like sinamay directly into hats for women's wear. Such hats have been lately very popular, and many of them can be seen worn by women in the United States.<sup>3</sup>

#### PLAITING MATERIALS.

A profitable household industry in many countries, notably China, Japan, Switzerland, Italy, France, Germany, and Austria, is the plaiting of cereal straws and other materials into plaits (braids) for exportation to hat manufacturers. Such braids are now being used in a Manila factory, where

<sup>1</sup> From the roots of the cultivated variety (raiz-de-moras) an essential oil is extracted in Europe, and they can be made into fans and mats. They are used to scent clothing in the Philippines.

<sup>2</sup> The plant is in some localities called "sikiu," and in Laguna is reported called "lokmoy;" in general, the name "balangot" is very loosely applied to sedges and grasses.

<sup>3</sup> The Bureau of Education is preparing a list of materials used in industrial work. This list will give the numerous other minor materials suitable for hat weaving.

they are manufactured into straw hats. In Switzerland a fine quality of abaka is made into straw with the aid of size and heavy pressure, and is then plaited or woven on looms into fancy braids for the millinery trade. An important field for investigation is the question of plaiting materials found in the Philippines. The chief world materials now used to produce braids are wheat, rye, barley, and rice straws, and prepared straws such as those made from abaka. Philippine straws, such as buntal, and perhaps others of which we at present have no knowledge, may be possible materials for such household work. At present rice straw and buri are roughly used for this purpose, the rice-straw braid being a product of Ilokanos and the buri braid of the schools and of Los Baños, Laguna.

#### PHILIPPINE HAT TRADE.

##### DOMESTIC TRADE.

Domestic commerce in Philippine hats divides itself into two parts, the gathering of hats in the producing towns and bringing them to Manila for sale to large exporting firms and dealers, and the retailing of hats in the large cities and throughout the provinces. The hat broker, his uses and methods, has already been described for bamboo hats, and wherever he may appear, be it in Baliwag, Kala-siao or Lukban, he is quite the same. He buys hats from the weavers, or, through advancing money and provisions, makes them pledge their products to him. Control of the trade must be had through these brokers. The large dealers and exporters can give their orders as to style, quality, and quantity to them, and the brokers in turn can thus advise the weavers. As already explained, on account of peculiar inertia and lack of foresight on the part of weavers, brokers find it difficult to change the style and quality of the weavers' product, and where it is done the prices of such products are liable to be materially advanced. The failure, therefore, to meet changing demand does not seemed to lie with the system but rather in the short-sightedness of the weavers. The increasing of price with increased general demand is of course to be expected, and

is perfectly legitimate. In fact, brokers themselves are in the habit of raising prices when there is large demand, as, for instance, during an influx of tourists into Manila. But increasing prices on special orders is a very shortsighted and ruinous policy for weavers to follow, since they thereby attempt to make the market meet their requirements instead of encouraging demand by conforming to its details.

The most important hat for present domestic commerce is undoubtedly the buri. It is cheap, fairly strong, and has a white color such as is demanded by Filipinos.

Next in importance comes the pandan, which is also cheap, but while stronger than buri is not of a pleasing color. These two hats are the common hats of the Philippines and will be for a long time to come.

For the better trade, Kalasiao hats are very popular on account of their good white color when bleached and their toughness in the form of sailors. Demand for them will undoubtedly continue.

Sabutan must be reckoned fourth, but is growing very rapidly in importance. It is at present being used as a better-class hat, but on account of its great durability it is also gradually taking the place of pandan and buri. If it can be bleached a good white without much damage to its strength it will be assisted in becoming the most important hat in domestic commerce, and even in its natural gray color it bids fair to outdistance the others on account of its strength and the protection which it affords from the sun, and from the fact that the plant can be so widely cultivated and the straw so easily prepared.

Bamboo or Baliwag hats have a fair domestic commerce, but they are not durable enough in comparison with other local products to be of very great importance except in the more expensive trade.

Buntal hats seem to have grown in favor in domestic commerce, and they are now being worn a great deal by those who can afford them. As they do not offer much protection from the sun, it is doubtful whether they will be of considerable domestic importance. Buntal-sawali hats may, however, become of wider local use since their close weave offers better protection.

The blocking and trimming of native hats for domestic commerce is now entirely done by hand over wooden blocks. There is a field for the introduction of machinery for the purpose of shaping native hats for both the Philippine market and surrounding markets such as the China coast cities. Indeed, outside of hat-producing towns and seaports, there are few Philippine towns possessing a shop where hats can be bleached, cleaned, and blocked. In many towns there are good chances for a hatter to make money.

#### EXPORT TRADE.

The export trade can also be divided into two parts—the export of large lots of hats by wholesalers in Manila to wholesalers in Europe and the United States, and the small trade carried on by smaller dealers in Manila directly with retailers in the United States. Direct export to retailers has been made possible by free trade, and much of it is carried on through the mails. Wholesale export can easily be carried on in those hats, such as bamboo, buntal, and buri, which are produced in such large quantities that, while the profit on a single hat is small, the total profits on a large number of hats will amount to a great enough sum to justify their handling. These hats are produced cheaply enough here to allow several profits before coming to the hands of the retailers. But in trade direct with the retailer hats not produced in such large quantities can be handled, since the total profit on each hat is divided among fewer middlemen and the gain on each hat to the Manila exporter is larger. In the same way hats which are rather expensive from the weaver are also adapted to export trade direct with the retailer, since, not so many profits being obtained, the hat can be delivered to the consumer at a price which he is willing to pay. Besides the wholesale hats, Kalasiao, sabutan, rattan, and buntal-sawali hats are now chiefly adapted to export trade direct to the retailer. Many persons are entering this trade and there are excellent openings for young Filipinos to become not only hat brokers but also exporters direct to the retailers.

*Philippine hat exports during the fiscal years ended June 30, 1908,  
1909, and 1910.*

[Values are stated in United States currency.]

Country.	1907-8.		1908-9.		1909-10.	
	Number.	Value.	Number.	Value.	Number.	Value.
United States -----	63,475	\$21,928	32,871	\$23,411	189,180	\$122,313
France -----	211,567	88,856	239,167	89,108	289,167	124,154
All other countries-----	197,345	59,103	210,957	61,963	143,028	33,882
Grand total-----	472,387	169,887	482,995	168,482	621,375	280,349

The export of Philippine hats as reported to the Insular Collector of Customs by exporters shows only three headings—namely, bamboo, buri, and all other. Most of the buntal hats and many of the buri are undoubtedly reported under bamboo hats, hence it is impossible to determine the relative amounts of the chief export hats of the Philippines sent abroad. The statistics are, however, valuable for the purpose of determining the increase in the trade and the relative amounts taken by different countries. Previous to free trade very few hats were sent directly to the United States, most of them going via Paris. In the year 1909-10, however, the trade direct to the United States increased more than five times over the same trade in the year 1908-9, thus accounting very largely for the total increase in hat trade of the Philippines, which in the year 1909-10 rose to over 70 per cent more than the trade of 1908-9. France, it will be noted, continues to be the chief taker of Philippine hats, though there seems to be a good chance that the United States will out distance her in the records of the present year. It will be noted that the average price of hats exported to the United States is about ₱1.30, while the average price of those exported to France is about 86 centavos, indicating that the United States is at present the best market for the finer hats. Exporters seem to differ in opinion as to whether Europe or the United States will in the future be the best fine-hat market, but these statistics would seem to indicate that the largest demand will come from America. The fact should be noticed also that the average price of hats exported in 1908-9 was

about 70 centavos, while the average price in the year 1909-10 was about 90 centavos, seemingly indicating either larger export of finer hats or a rise in prices.

Bamboo and buntal hats are the largest export in point of value. While many thousands of buri hats were exported, their total value is very small in comparison with the other two, and they largely account for the small export price per hat. A small number of Kalasiao, rattan, and other hats is also included, but they are insignificant compared with bamboo and buntal. In fact, according to the opinion of most persons, particularly exporters interested in the hat business, bamboo and buntal hats will continue the chief hat export of the Philippines, with buntal growing steadily in relative importance. The demand for bamboo hats is liable to fluctuate, since they are more of a fancy article than are buntal and, being more used for women's wear, are more influenced by ever-changing fashions.

#### SUMMARY.

It is the consensus of opinion among hat exporters and other persons largely interested in Philippine hats that the buntal hat is, of the different Philippine products, the hat to be encouraged in manufacture for export. The demand for it is greater than the present supply, and seems to be increasing. Present production could be increased many-fold without serious decrease in the price. But not only should the production be stimulated in amount but the quality of the hats should also be improved so that by better weaving more of the finer-grade hats shall be produced. The raw material for the production of buntal straw exists in large quantities, and the straw can easily be distributed to the producing towns. It would seem a good policy, therefore, to encourage the production of this hat not only in towns where no commercial hat production now exists but also in towns where less salable hats are now made. Buntal-sawali has large possibilities, and the hat may become important in both domestic and foreign trade.

While sabutan does not have the export importance

before it that buntal has, yet its great value in domestic trade and its possible importance in export trade direct to the retailer make it a hat the production of which should be encouraged and which may some time be the foremost hat produced in the Islands. Since the plant can be grown in the school grounds and the straw is easily prepared, the raw material for hats need cost nothing. Other straws, such as buri, are often difficult to obtain.

The present production of bamboo hats seems about to meet the demand in the long run, a proposition which is even more true of Kalasiao hats, and it is therefore doubtful whether their increased production should be encouraged. The natural spread of these two industries will most likely meet any growth in the demand for their products.

Buri and pandan hats are of large importance in the domestic trade and will most likely continue to be. Their production should be encouraged to meet home demand and also to meet a smaller demand in the export trade.

Some of the minor hats, such as tikug, may prove of great importance with time, and their production should be fostered in present producing regions and where raw material can be obtained.

As to the manner in which hat weaving should be taught in the schools, it would appear that the fabrication of buri hats should be taught first, since the straw is easy to manipulate in the "over-and-under" weave. Pandan and tikug are in the next class in this respect. This instruction should be followed by the weaving of buntal hats in the "over-and-under" weave, which is often found difficult at first; then sabutan, with double straws, in the "sawali" weave; and finally, buntal, in the "sawali" weave. Thus students will be taught the weaves and the manipulation of the straw from the most simple and easiest weave and most pliable straw to the most difficult weave and stiffest material. While there are distinct markets for fine and coarse hats, fine and careful weaving only should be encouraged, since, on account of the novices and aged weavers, the production of coarse hats will take care of itself.

## ILLUSTRATIONS.

(Specimens from the Commercial Museum of the Philippine School of Commerce.)

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PLATE I. Salakots.

- II. The weaving of a hat.
- III. The double hat.
- IV. Preparation of bamboo layers.
- V. Preparation of bamboo straws.
- VI. Grades of bamboo hats.
- VII. The buri palm. (Photo by H. D. Gibbs.)
- VIII. Preparation of buri straw with a bamboo guide.
- IX. Preparation of buri straw between razor blades.
- X. "Arayat" and "Mauban" buri hats.
- XI. Preparation of Kalasiao straw.
- XII. Grades of Kalasiao hats, including one in sailor shape.
- XIII. Extracting buntal fiber.
- XIV. Rolling buntal straw. (Photo by George Kindley, Lukban.)
- XV. Grades of buntal hats.
- XVI. Young sabutan plants under cultivation in Singalong, Manila.
- XVII. Preparation of sabutan straw.
- XVIII. Grades of sabutan hats and the sabutan comb.
- XIX. Pandan. (Photo by G. Visata, Mahayhay.)
- XX. Pandan and tikug hats.
- XXI. Vetiver and buntal-sawali hats.









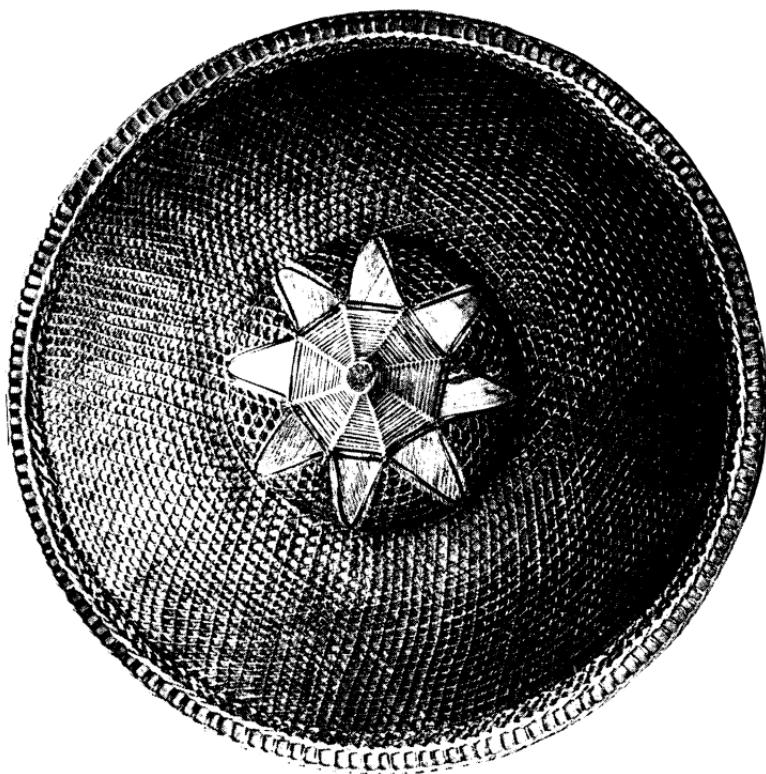


PLATE I. SALAKOTS



SMITH  
OF  
NICK



PLATE II. THE WEAVING OF A HAT.





PLATE III. THE DOUBLE HAT.

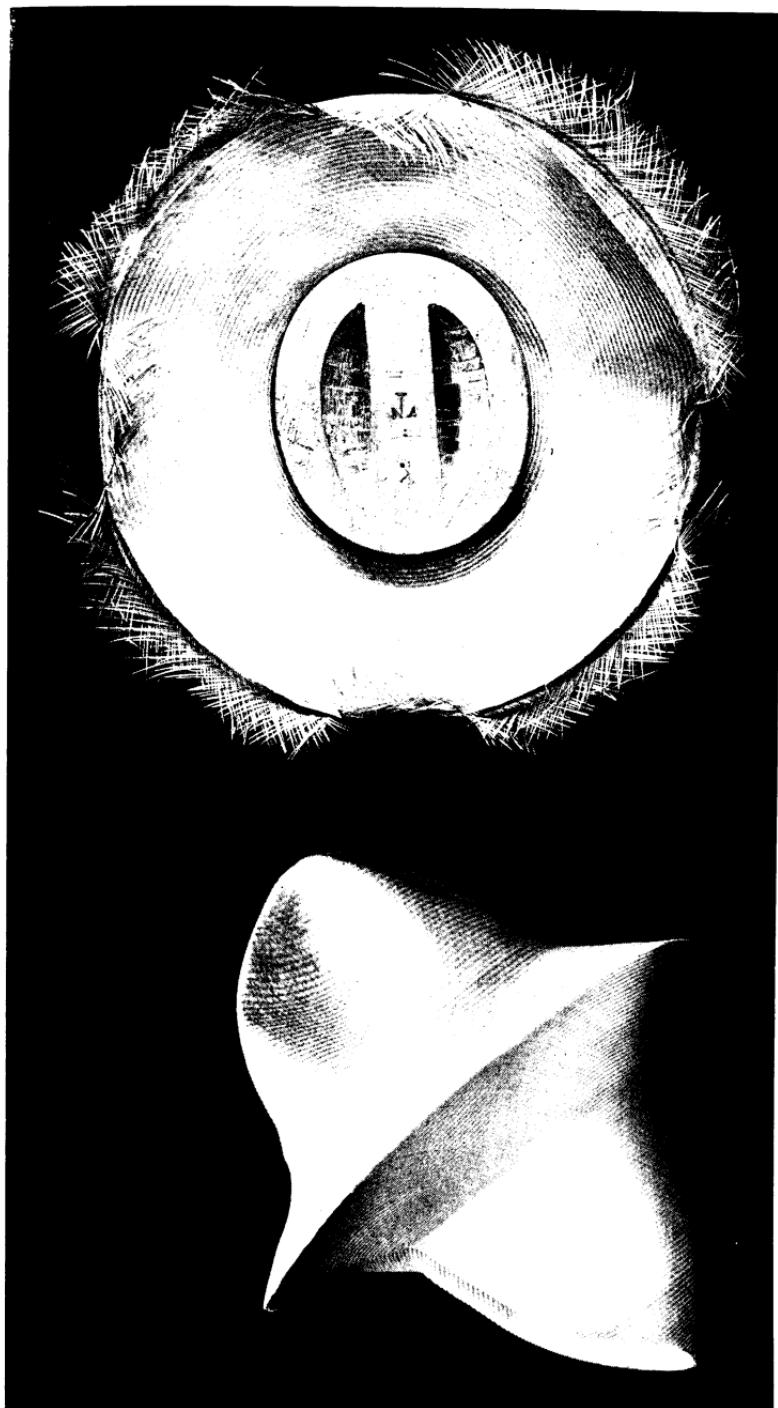
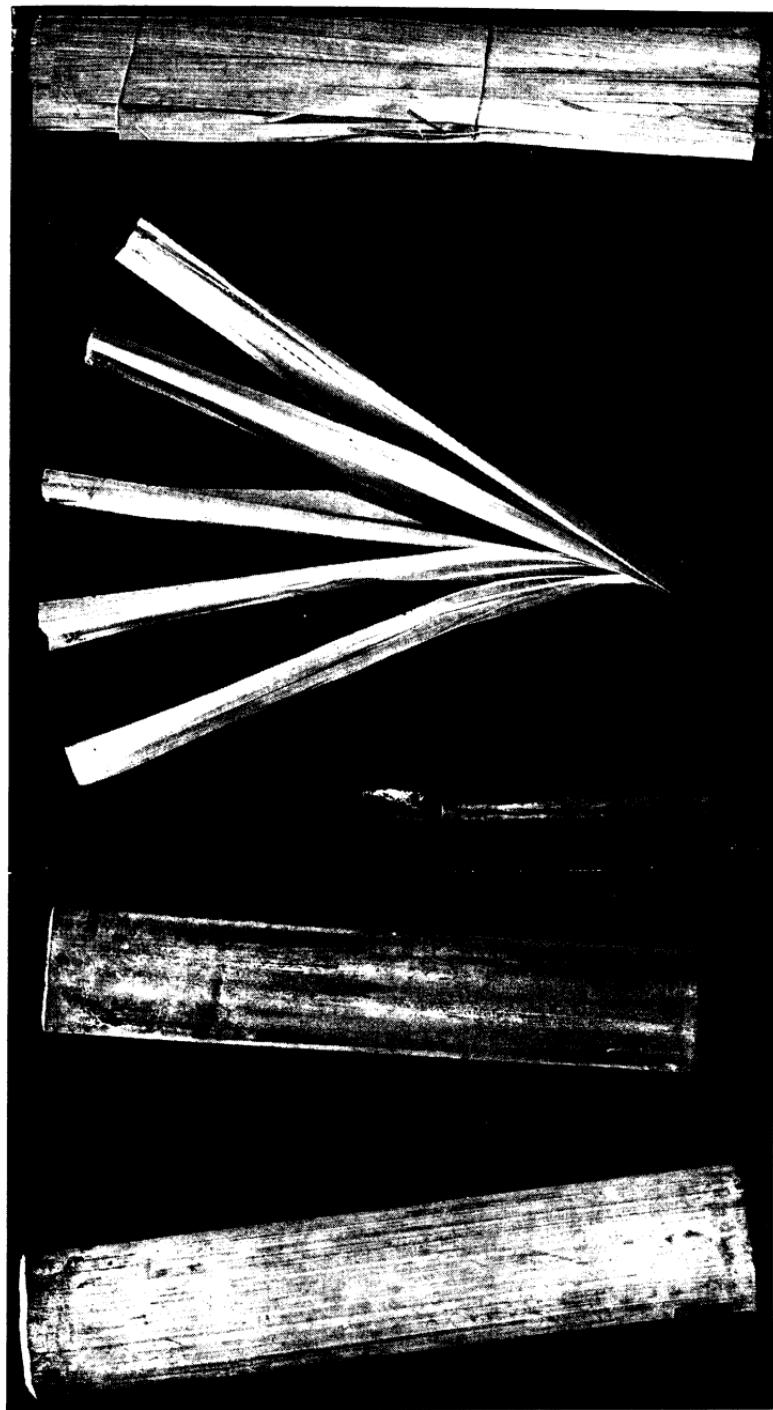




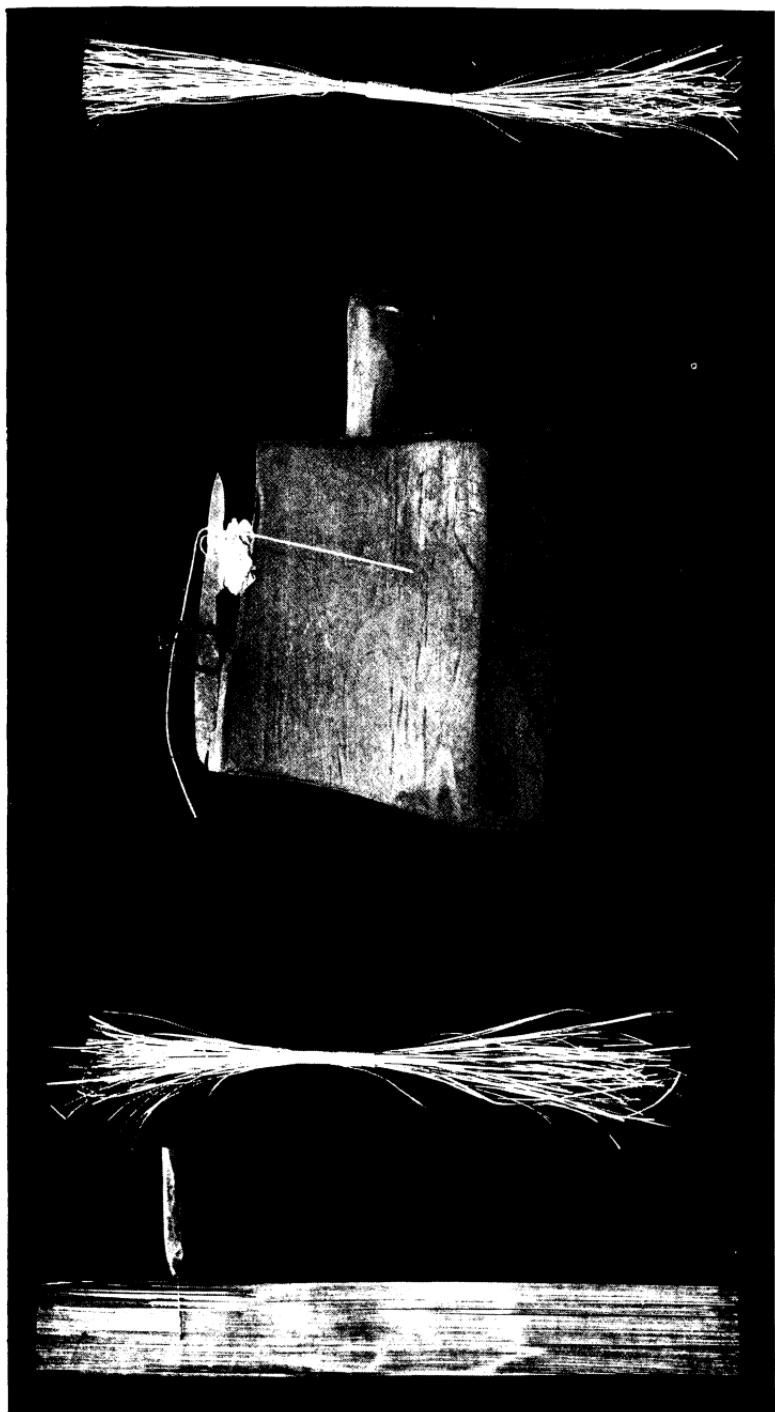
PLATE IV. PREPARATION OF BAMBOO LAYERS.



UNIK



PLATE V. PREPARATION OF BAMBOO STRAW.



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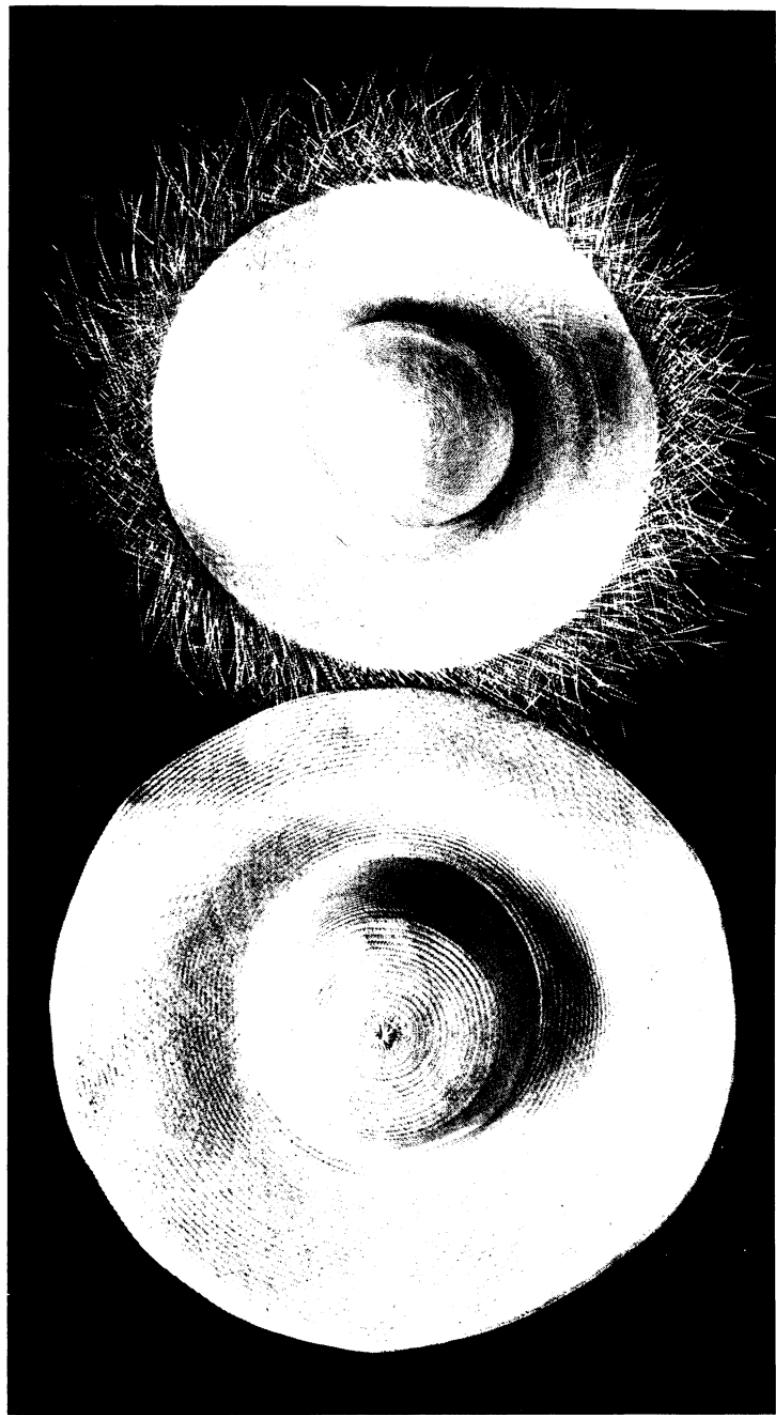


PLATE VI. GRADES OF BAMBOO HATS.

UNIK





PLATE VII. THE BURI PALM.

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1901



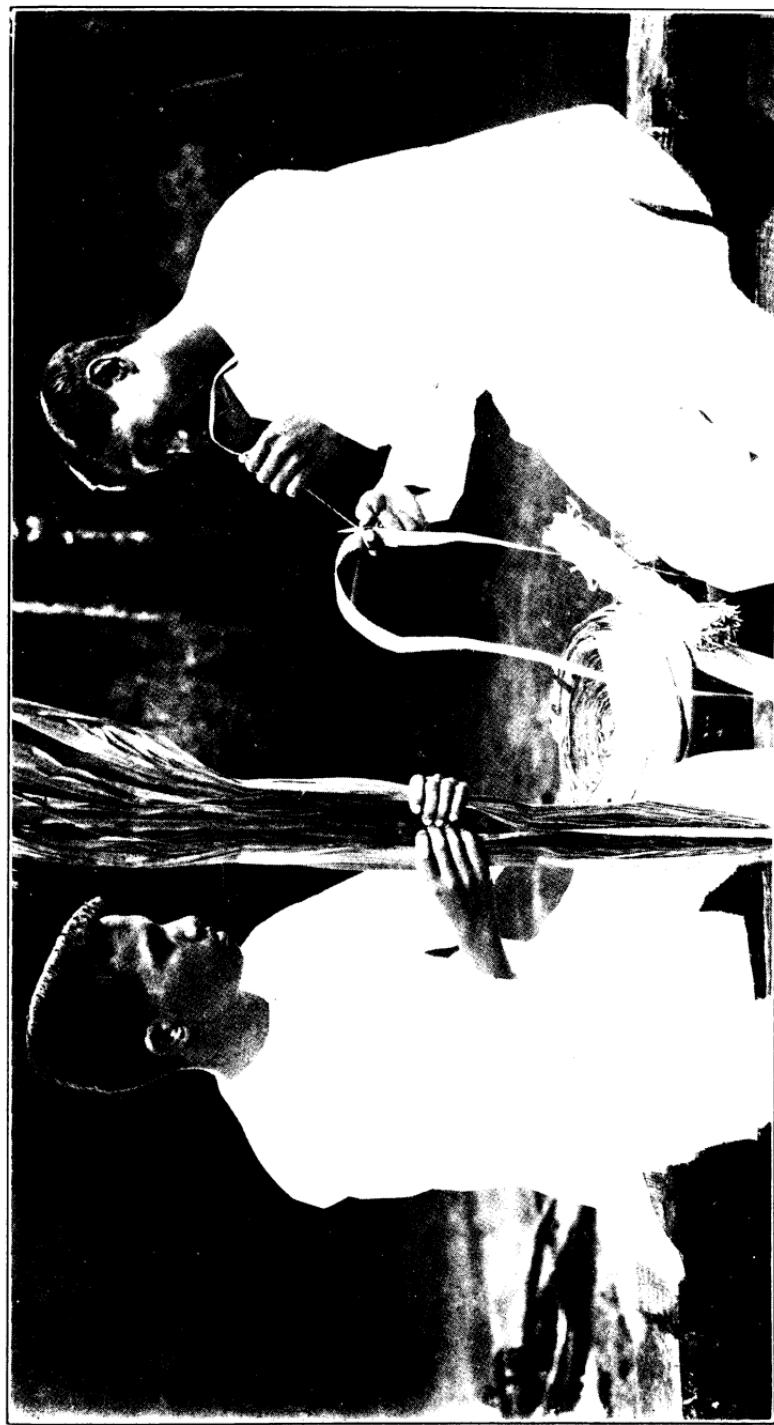


PLATE VIII. PREPARATION OF BURI STRAW WITH A BAMBOO GUIDE.

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PLATE IX. PREPARATION OF BURI STRAW BETWEEN RAZOR BLADES.

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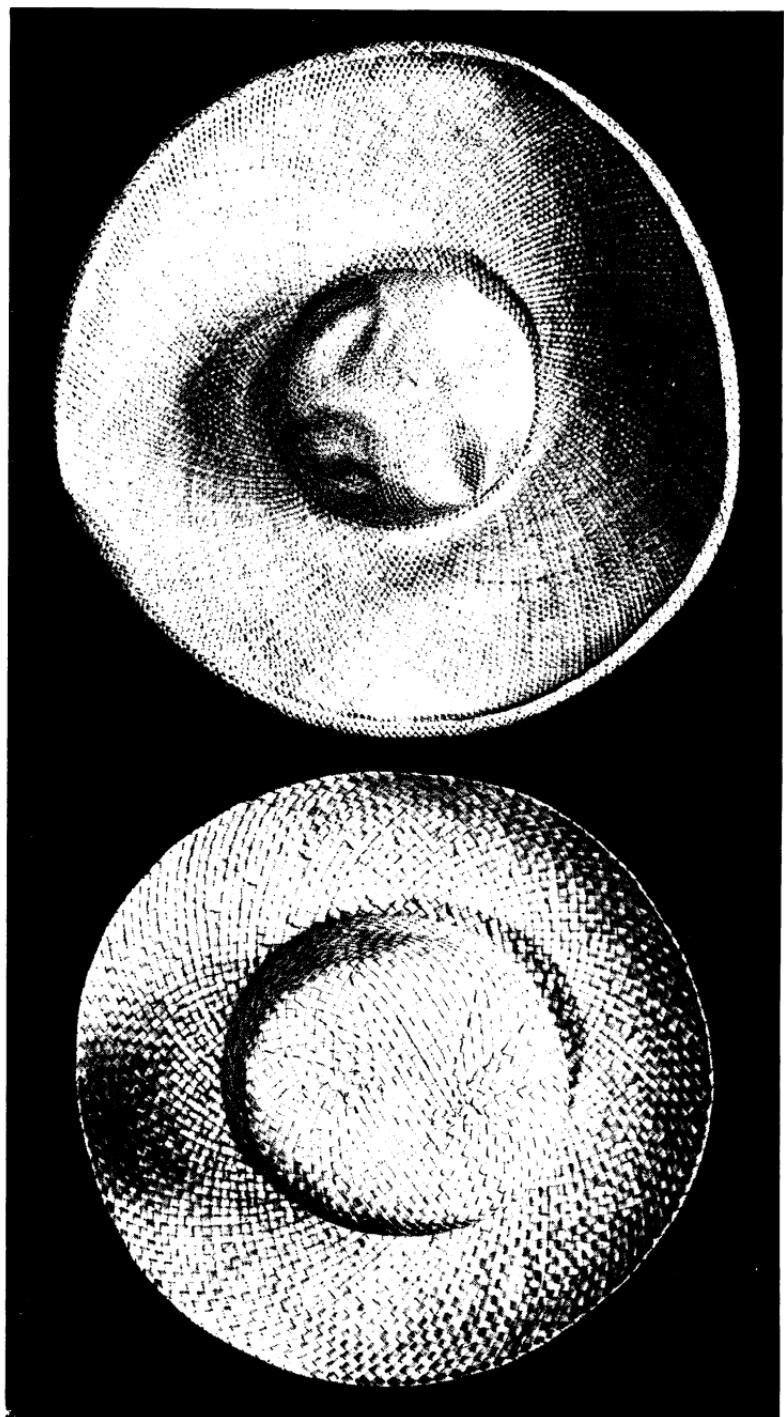


PLATE X. "ARAYAT" AND "MAUBAN" BURI HATS.





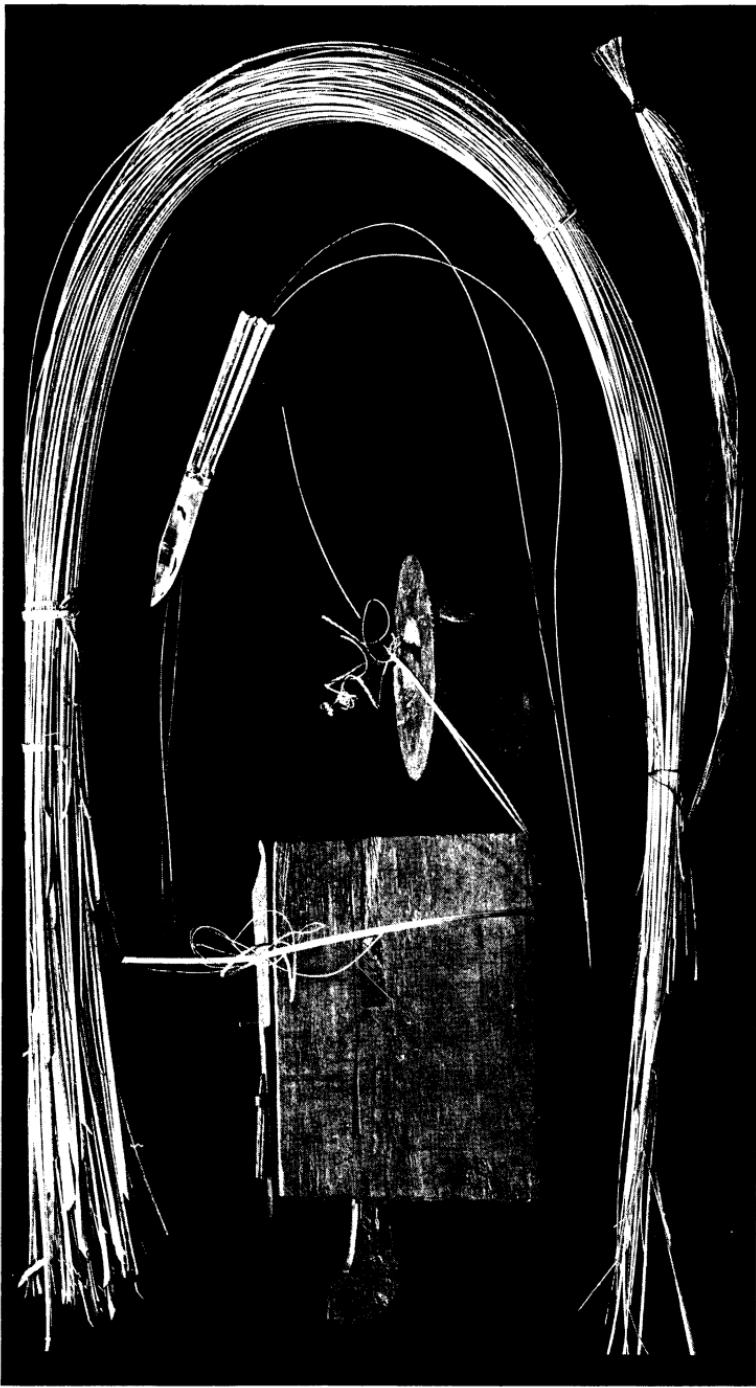


PLATE XI. PREPARATION OF KALASIAO STRAW.





PLATE XII GRADES OF KALASIAO HATS.

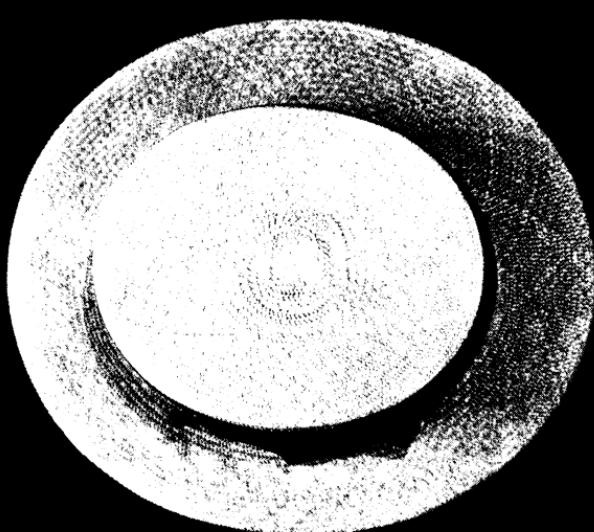
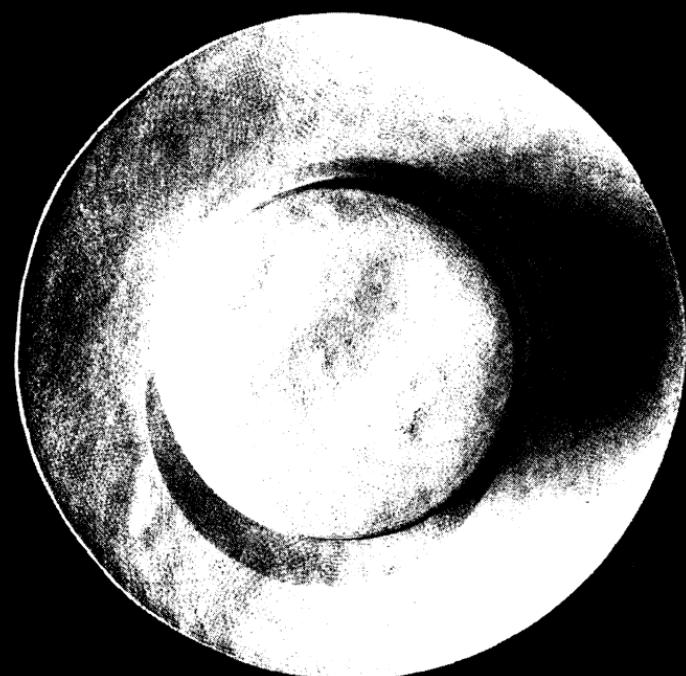






PLATE XIII. EXTRACTING BUNTAL FIBER.

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PLATE XIV. ROLLING BUNTAL STRAW.

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PLATE XV. GRADES OF BUNTAL HATS.

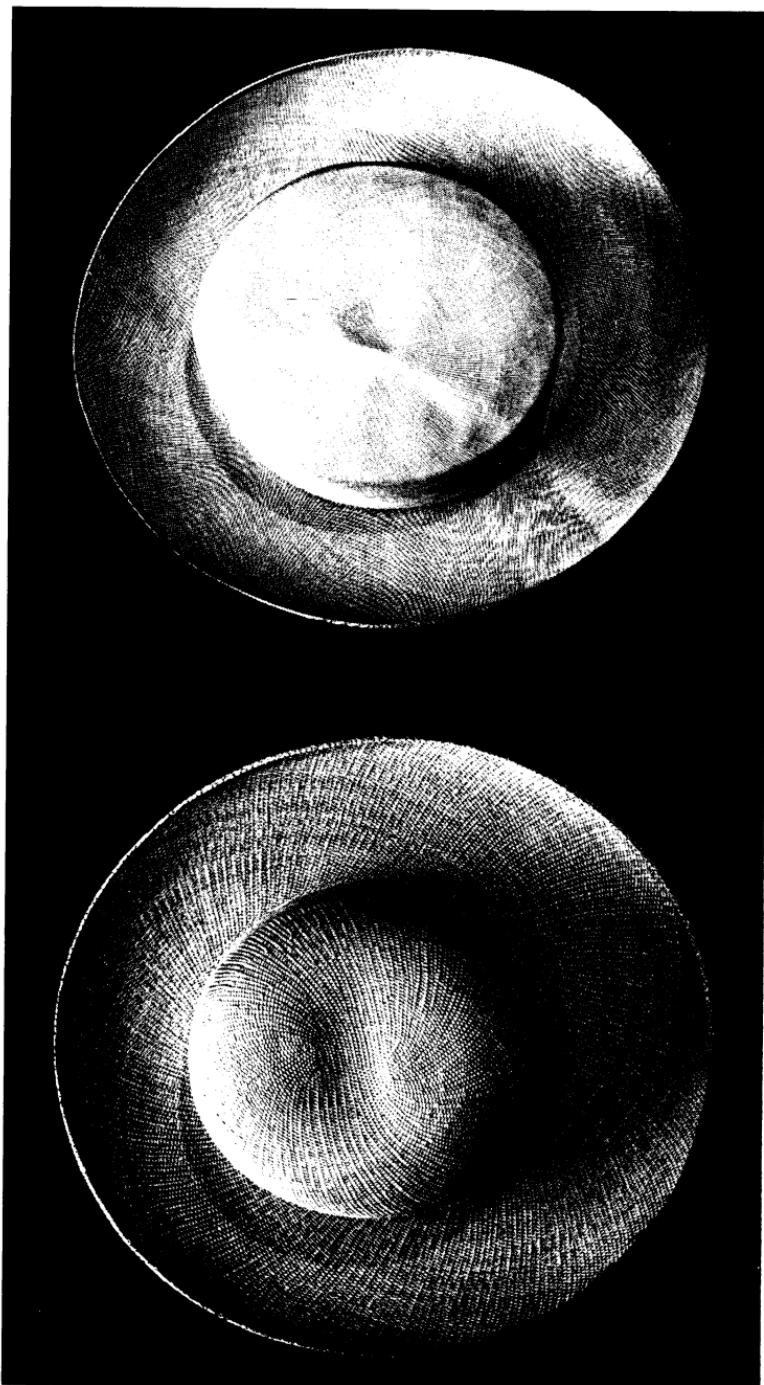






PLATE XVI. YOUNG SABUTAN PLANTS.

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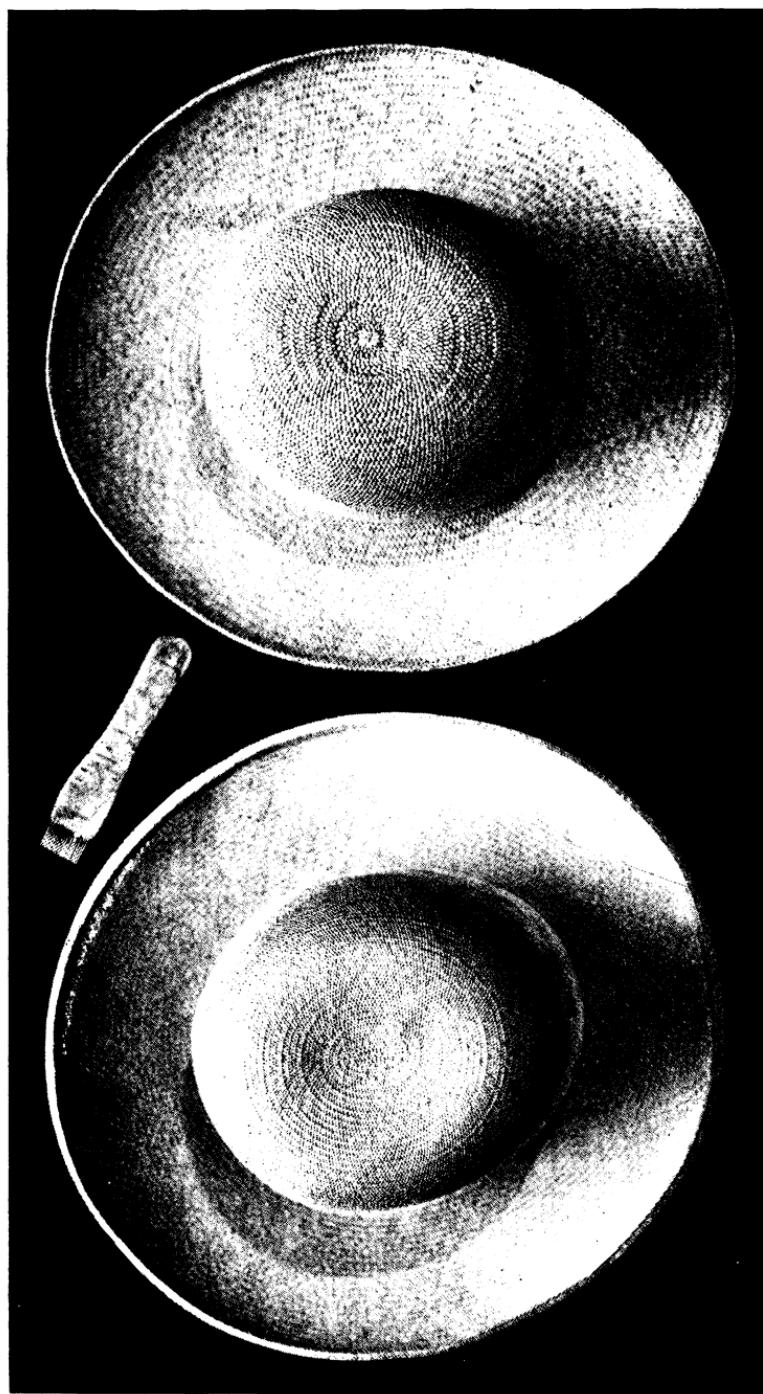




PLATE XVII PREPARATION OF SABUTAN STRAW.



PLATE XVIII. GRADES OF SABUTAN HATS AND THE SABUTAN COMB.



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PLATE XIX. PANDAN.



PLATE XX. PANDAN AND TIKUG HATS.

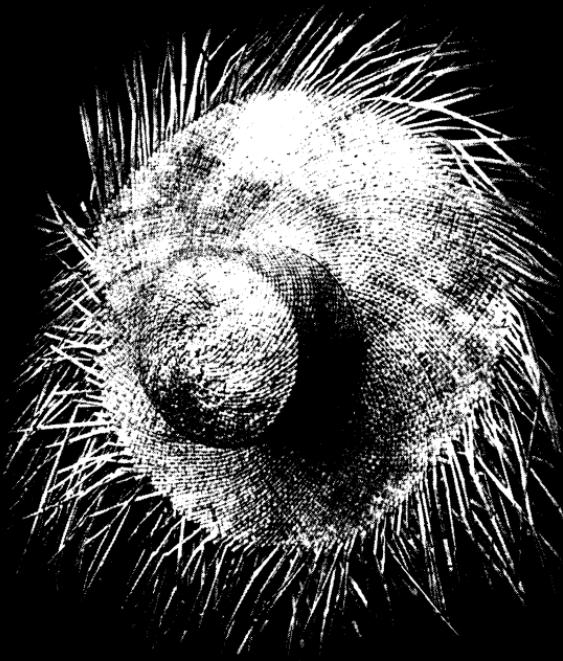
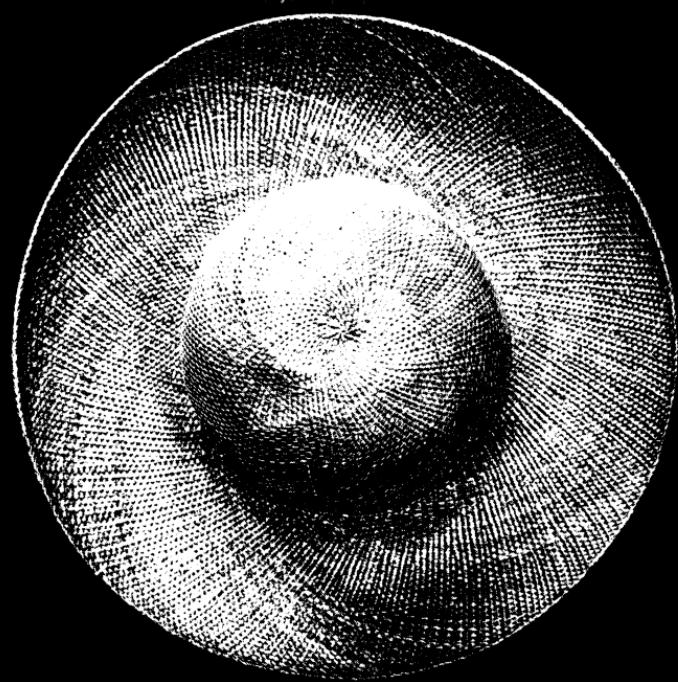




PLATE XXI. VETIVER AND BUNTAL-SAWALI HATS.

